The DB2 on Campus Portal
An Open Source Project using
DB2 Express-C

Business Requirements and specifications

D R A F T

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Document Version: 1.2
Last updated: November 15th, 2008

1 Introduction

This document provides business specifications for the development of the DB2 on Campus portal back-end. The DB2 on Campus portal includes information about the DB2 on Campus program, the DB2 Student Ambassador program, and other information of interest to students, professionals, faculty, and IBM. These are the components of the portal:

1. **Registration System (RS)**
   Users of the system must first register. The registration will use a two-part approach. The first part is simple and compulsory to access most of the features of the system. The second part, 'the user profile', requires more time to complete but can be performed at a later time. The second part must be completed in order to access some features of the system, like the Resume Generator System.

2. **Online Test System (OTS)**
   This system allows students to take tests created by administrators of the system. The system retrieves questions stored in a database, and displays them in a multiple-choice format. The system keeps track of the time and score and provides a report with the final mark.

3. **Online Competition System (CS)**
   This system allows students to compete between each other by testing them in their knowledge of a given subject or software; for example, DB2. The CS generates the questions, and students submit their answers through the system which keeps track of which team is winning at all times. The team that answers the most questions correctly the fastest wins.

4. **Questions Generator System (QGS)**
   The QGS generates test questions dynamically as students are writing the test. Depending on how good or bad the student is answering, the system will generate or pick from a database questions with different levels of difficulty and subtopic. Therefore the chances of students writing the same exact test are minimal. The system will:

   - Ensure students have an adequate level of knowledge on selected topics of the test.
   - Ensure each test is different for each student, thus reducing chances of plagiarism.

   This system is used as "the brain" for the OTS and the CS.

5. **Report Generator System (RGS)**
   This system allows an administrator to obtain pre-defined and ad-hoc reports about all aspects of the portal.

6. **Resume Builder System (RBS)**
   This system allows students to build a resume (a.k.a curriculum vitae) based on the personal information provided at registration time. Access to the RBS is only allowed for students who completed the two parts of the registration.

7. **Matching System (MS)**

Professionals interested in scheduling a presentation about IBM software can contact university authorities through this system. Faculty members interested in meeting with other faculty or professionals, can also search for interested parties using this method.

8. **Document Exchange System (DES)**
   Community members can post documents, code, etc at their own wish. The system will rank the popular documents based on member's votes.

Figure 1 provides a big picture of how the components are interrelated.
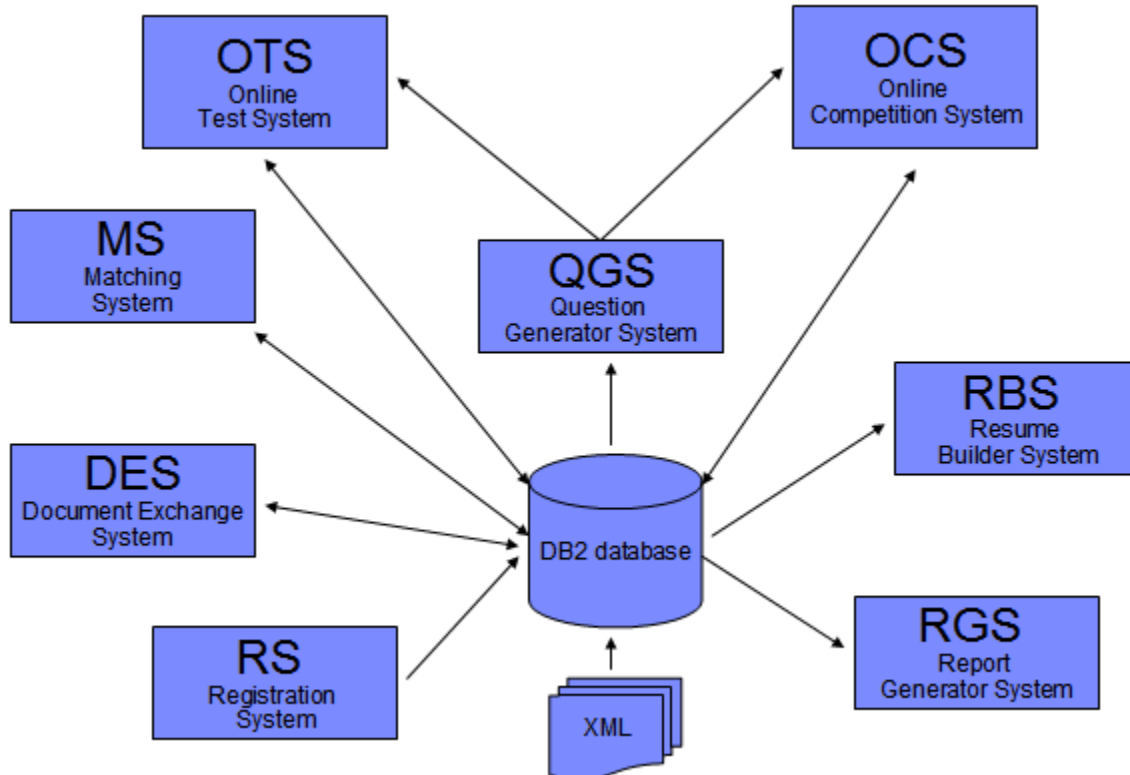
Figure 1 – Components of the DB2 on Campus Portal

2 Users of the DB2 on Campus Portal

Anybody is free to access the DB2 on Campus portal. We expect students, DB2 Student Ambassadors (A special type of student), faculty member, and professionals (including IBMers) to use the site.

Users can freely access most of the links and resources. When links/resources that do require registration/log-in are chosen, a registration/log-in page will be displayed.

Users who register will be given a "generic" role by default. After registration, an administrator can grant other roles to the user. Table 1 shows the different roles of the DB2 on Campus portal.

Role	Description	Privileges
Generic	Default role.	Access to:

		- Registration system - Online Test system - Online competition system - Resume Builder system - Document Exchange system
Administrator	This is the most powerful role. The system will be primed with one administrator.	Complete access to the DB2 on Campus Portal Can grant one or more roles to users including the "Administrator" role.
DB2 Student Ambassador	A DB2 Student Ambassador is a student who voluntarily promotes DB2 in his university.	In addition to "Generic" privileges, this user can: - Access to the Matching System - Input DB2 Student Ambassador and DB2 User group information that is visible by others.
Faculty Member	A faculty member or teaching assistant is a member of a recognized educational institution. This role requires manual verification where the member is required to provide a link in the university Web site with his personal information (Same approach as with the IBM Academic Initiative Web site)	In addition to "Generic" privileges, this user can: - Access to the Matching System
Professional	A professional is a user who currently works at a company. The professional can be an IBMer.	In addition to "Generic" privileges, this user can: - Access to the Matching System
Contributor	A user with this role can contribute with questions/templates to the system (add/delete/edit/search questions). Normally, this user is an IBM employee, or a faculty member who gets permission from an administrator to contribute with questions and is qualified to perform this task.	In addition to "Generic" privileges, this user can: - Access to the Matching System - Access to the Questions Generator system.

Table 1 - Roles of the DB2 on Campus Portal

3 Software

The only hard requirement for this project is to use DB2 Express-C as the data server, and either Linux or Windows as the operating system. The following are suggested programming languages to use and suggested Integrated Development Environments (IDEs):

PHP (Zend Core for IBM),
Ruby on Rails (Starter toolkit for DB2 on Rails, RadRails)
Java (Eclipse)

C/C++ (Eclipse)

4 Hardware

Development of the portal can be done in any computer supporting the above mentioned software. The final solution will be hosted in a server at an IBM donated laboratory in a university.

5 Considerations

The DB2 on Campus portal backend should be designed considering the following:

- Most of the contents in the DB2 on Campus portal will be freely and easily accessible with no registration required. A registration/log-in page will be displayed when links/resources that do require registration are chosen.

- English will be used for the back-end; however, all text displayed should be customizable to make it easier for deployment in other geographies that use other languages (Internationalization).

- In addition, the system should be designed so it can be easily implemented for other brands of IBM like Rational, Tivoli or WebSphere.

- All of the panels in the DB2 on Campus portal should have help information available (Hover help or any other help method is acceptable, but it should be consistent)

- Though this document describes the business specifications of the DB2 on Campus portal, we also want to showcase some features of DB2, especially DB2's pureXML technology; therefore, we provide guidance as to how to implement some of the systems.

5.1 Considerations for the Online Test System

5.1.1 Storing the questions

For the Online Test System, test questions and corresponding answers must be stored using XML. To store the questions in a DB2 database, a table "Questions" with two columns can be created as show in table 2 below.

Column name	Data Type	Description
id	Integer defined as an identity column	Stores a unique identifier for the question.
question	XML	Stored the question in XML format.

Table 2 – The "Questions" table structure

Once a question is randomly picked during the test, it should not be picked again. The unique ID can be used to keep track if the question was picked before.

Listing 1 below provides an example XML document used to store a question.

```
<question>
  <author>
       <user_ID> raul@ibm.com </user_ID>
  </author>
  <classification>
     <topic> DB2 Fundamentals </topic>
     <subtopic> Configuration </subtopic>
  </classification>
  <level> Easy </level>
  <language> English </language>
  <minutes_allocated> 2 </minutes_allocated>
  <question_text>
     Which command is used to review the value of the DB2 registry?
  </question_text>
  <answer>
     <choice1> update dbm cfg </choice1>
     <choice2 type="correct"> db2set </choice2>
     <choice3> get dbm cfg </choice3>
     <choice4> 1 and 3 </choice4>
     <choice5> 2 and 3 </choice5>
  </answer>
  <keywords> DB2 registry, dbm cfg, db2set </keywords>
</question>
```

Listing 1 – An example of storing questions as XML

An XML Schema document can be generated from the above XML document, and this should be taken into consideration for the XML Schema:

Level
The level element indicates the level of difficulty for the question. There will be the following levels of difficulty:

1. Very easy
2. Easy
3. Intermediate
4. Difficult
5. Very difficult

This element must occur at least once.

Language
In the future all questions will be translated to different languages. In its first implementation, the portal will provide questions only in English. This element must occur at least once.

Author
The author tag contains the user ID of the author of the question, which is the unique user ID a contributor or administrator used when he registered to the system.

Classification

Questions are classified by topic and subtopic. A topic corresponds to a given subject (eg: DB2 Fundamentals, DB2 Database Administration, DB2 Application Development, Rational Data Architect Database Design, Software Engineering, etc.)

A subtopic corresponds to a given area within the topic. For example, for the DB2 Fundamentals topic, the following subtopics will be used (which are taken from the free book "Getting Started with DB2 Express-C"):

1. DB2 versions
2. Installation
3. Tools
4. Configuration
5. Connectivity
6. Architecture
7. Database Objects
8. Data Movement
9. Security
10. Backup and Recovery
11. Maintenance
12. Concurrency and Locking
13. SQL
14. Stored Procedures
15. Functions
16. Triggers
17. pureXML
18. Java
19. PHP
20. Ruby on Rails
21. Troubleshooting

Though the Online Test System will be used to deliver tests on different subjects (topics); when the portal is first deployed, questions will be provided for one topic: "DB2 Fundamentals". This element and sub-elements must occur at least once.

Minutes allocated
Each question includes the amount of minutes allocated for the question. The OTS should be designed to allow the creator of a test to override this amount to a fixed amount of time (eg: 5 minutes per question), or to use the amount specified in the question.

Question Text
This is the text for the question. This element must occur at least once.

Answer
There should be a minimum of 4 choices and a maximum of 7 choices as answers in the multiple-choice question. This element must occur at least once.

Keywords
This tag is used to store several keywords of the question that can be used to make the search of a question more easily. This element must occur at least once.

5.1.2 Creating tests

A test maps a given topic. For example, the "DB2 Fundamentals Test" would map to the "DB2 Fundamentals" topic. The topic is included as an XML element in the question. The questions are displayed to the participant as html when he is taking the test.

A test can be created in two ways:

Manually created by an administrator
An administrator can create "fixed" tests by picking the questions which would be grouped by topics. In some situations, administrators could pick questions from different topics for a test.

Generated by the Questions Generator System
The system will dynamically create a test by randomly picking questions or templates from the database for a given topic. This will be done at run time, while the participant is taking the test. For this case, an administrator needs to assign values to variables that will determine how the Questions Generator System would behave. This would be done ahead of time.

Both types of tests have a fixed amount of time to complete. Each question also has a fixed amount of time to complete. If the participant does not complete the question in the allotted time, the system will move on to the next question automatically. Of course the participant can submit the answer to the question before the allotted time is finished.

5.2 Considerations for the Questions Generator System

There are two ways to generate questions for a test:

1. Randomly picking the question from the database
2. Randomly picking a template from the database and generating the question

5.2.1 Randomly picking the question from a database (Use pureXML)

The system will dynamically create a test by randomly picking questions from the database for a given topic; first from the "Very easy" level for the different subtopics. As the student starts answering the questions, the system will be picking more complex questions until the system determines the student has enough knowledge on the particular subtopic. Only several subtopics randomly chosen will be covered at the beginning of the test. By default, the number of topics is set to 10, but this is customizable. To reach a level of proficiency for a subtopic the following criteria should be used (also customizable):

1 Very easy question, 1 Easy question, and 1 Intermediate question should be answered correctly.

If the student does not respond correctly to a question on a given subtopic for a given difficult level, a comparable question will be picked, and the student will not be able to move past this level until he answers correctly. This does not mean the questions will be provided to the student one subtopic at a time. The student will get questions on any of the 10 different subtopics randomly, but will remain on the same level of difficulty for a given subtopic until he reaches the right level. Not moving past a level will of course impact the time the student has left writing the test.

On the other hand, if the student answers correctly all the time reaching all the levels of proficiency quickly; he will be given bonus questions to improve his mark. When the student reaches the level of proficiency for all subtopics, he will be given the lowest passing mark of 65%. As the student correctly answers the bonus questions, he will be given 1% more for each correct question answered to a maximum mark of 100%. The bonus questions will be generated starting from the difficult level, and from any subtopic, not just the 10 subtopics selected at the beginning of the test. The bonus questions will also have deduction points; however, if this causes the student to go below 65%, by the time the test ends, the final mark will still be 65%. The test will stop after 75 minutes have past. The mentioned thresholds are test variables which can be changed by an administrator.

5.2.2 Randomly picking a template from the database and generating the question (Use pureXML)

The system will be smart enough to generate questions not only by picking existing questions from the database, but by creating new ones based on a given template. For example, a question related to SQL may have the following template shown in Listing 2.

```
Provide the answer to the query:

SELECT col1, col2 FROM table1 WHERE col3 > col1 + col2

Where the contents of table1 are:
col1   col2    col3
10     20      70
30     40      10
50     60      20

Choices:
A) col1=30 col2=40
   col1=50 col2=60

B) col1=10 col2=20
   col1=50 col2=60

C) col1=10 col2=20

D) col1=50 col2=60

E) col1=40 col2=30
```

Listing 2 – An example of a question that can be used as a template

By changing the contents of the table, the query will provide different results, and the questions generator has to generate different possible multiple choice answers. This type of questions generation is tricky, and each template needs to be handled differently. For the above example the XML in the database could be the one shown in Listing 3.

```
<template  type="Add random number">
  <author>
      <user_ID> raul@ibm.com </user_ID>
  </author>
  <classification>
    <topic> DB2 Fundamentals </topic>
    <subtopic> SQL </subtopic>
  </classification>
```

```
  <level> Easy </level>
  <language> English </language>
  <minutes_allocated> 2 </minutes_allocated>
  <template_variable>
     row1:    col1=10   col2=20   col3=70
     row2:    col1=30   col2=40   col3=10
     row3:    col1=50   col2=60   col3=20
  </template_variable>
  <template_text>
     Given the above table, provide the answer to the query:
     SELECT col1, col2 FROM table1 WHERE col3 > col1 + col2
  </template_text>
   <answer>
           <choice1> col1=30 col2=40
                     col1=50 col2=60
           </choice1>
           <choice2> col1=10 col2=20
                     col1=50 col2=60
           </choice2>
           <choice3 type="correct">
                     col1=10 col2=20
           </choice3>
           <choice4>
               col1=50 col2=60
           </choice4>
    </answer>
    <keywords> Add random number, SQL </keywords>
 </template>
```
Listing 3 – The corresponding XML document for the template example

In this example, the system could increase the numbers on the table and also in the answer choices by one constant value. This constant value is picked randomly. Next the system, should randomly switch the order of the answer choices around.

Each template has a type. For example, in this template, the type is "Add random number" which means all numbers on the table(s) and answer choices will be increased by a random number. Another template using this type could reuse the same type of code to handle the question generation.

Note:
As part of these Use case, create two more templates like this.

6 Use Cases
In this section we describe use cases for all users of the DB2 on Campus portal. In some situations we will provide figures for a better description of the use case.

Figure 2 provides a draft visual of how the DB2 on Campus Portal Welcome Page looks like. The front-end of this site is already available online at www.db2oncampus.org. Some more menu items to be described in this document (highlighted with a red ellipse) have been added to support back-end functionality. Firefox and IE browsers should be supported.

Welcome page: www.db2oncampus.org

Figure 2 – The DB2 on Campus Portal - Welcome Page

Note:
Try to keep the same design and color as the Welcome Page (Figure 2), but the design can be improved at a later time. Concentrate on functionality.

6.1 Use cases under the "Members" menu item

When a user clicks on the "Members" menu item (circled in red in Figure 2 above), a page will be displayed with the information shown in table 3 below.

Introduction

This section is for registered users who have signed in to the system. Clicking on any of the links below will prompt you to register or sign-in if you have not already done so, and will redirect you to the desired item.

Online Test System:
Get a DB2 Community Qualification by passing free online tests!

Online Competition System:
Practice your DB2 skills and have fun! Compete with people online solving DB2 problems. The team finishing most problems in the least amount of time wins!

Resume Builder:
Build your resume in minutes!

Matching System:
If you are a faculty member, indicate when your students would be available for a presentation from a

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DB2 professional. If you are a DB2 professional (or DB2 Student Ambassador), indicate when you would be available to present at a university. This system will match the schedules from the two parties.

In addition, if you are a faculty member looking for other faculty or professionals to work on a given project or have the same area of specialization and interest, you can also look for these users through the system.

Questions Generator System:
Contribute with questions to be used for the Online Test System and the Online Competition System.

Report Generator System:
Obtain reports about the DB2 on Campus portal. Only administrators can access this system.

Table 3 – Options after selecting the "Members" menu item.

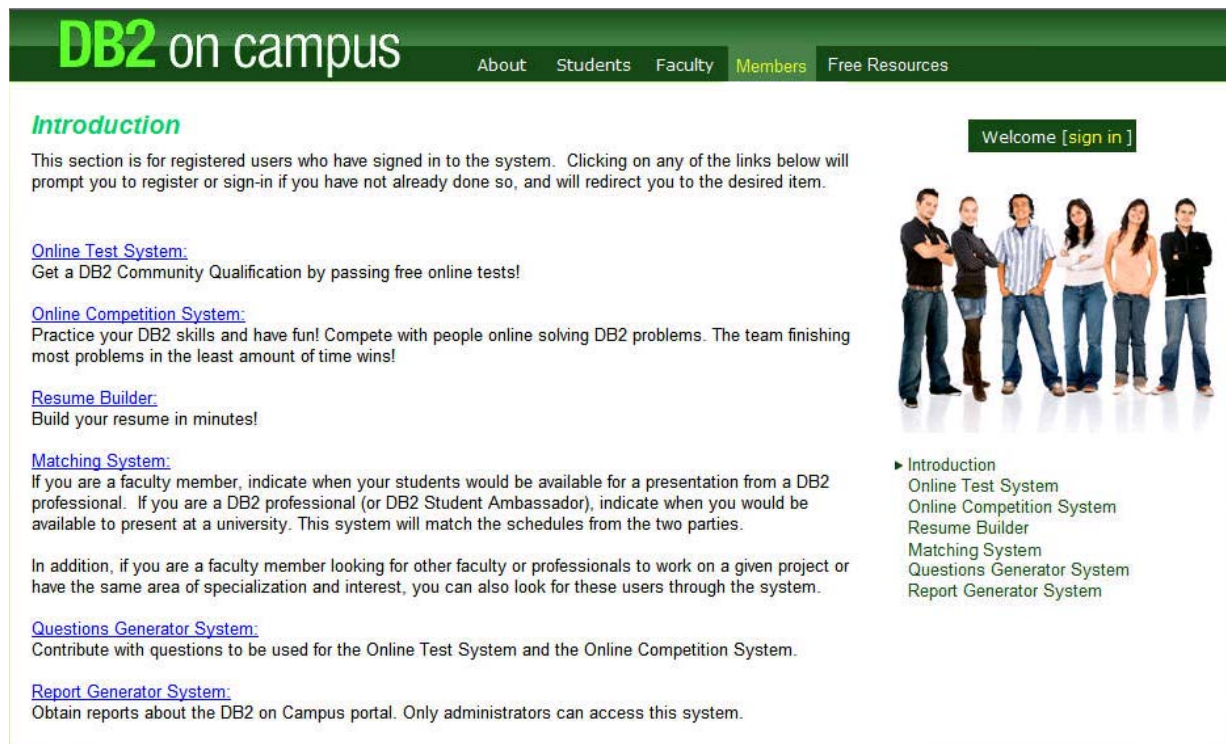Figure 3 below shows how this information could be displayed in the site:

Figure 3 – Page displayed after selecting the "Members" menu item.

6.1.1 Use case: Sign in to the system

When a user clicks on any of the options of the Members menu item, or on the "Welcome [sign in]" link at the top right corner (Figure 3), he will be taken to the Sign-in and Registration page as shown in Figure 4 if he had not already been signed-in.
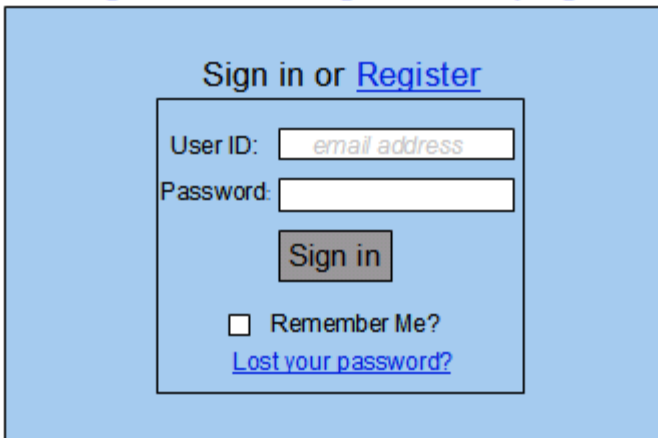
Figure 4 – Sign in and Registration page

In Figure 4, the user inputs his user ID (which is the email address he used when registering) and password. Then he clicks on the "Sign in" button. The system will verify that the user ID/password matches. If they do not match, the error message "User ID or password is incorrect" is displayed. A user is allowed to try signing in to the system up to 5 times. After that, he will be sent to the "Lost your password?" screen (see a later use case for details about this).

If the user ID/password matches, the user is allowed to continue to the next screen which would depend on two things:

1) The option selected
2) Whether the user has the role that allows him to access the selected option

If these two conditions are satisfied, the user will be taken to:

-   A main menu page which depends on the role of the user (if the Welcome [sign-in] link was chosen at the top right corner of the page)
-   The Online Test System page
-   The Online Competition System page
-   The Resume Builder page
-   The Matching System page
-   The Questions Generator System page
-   Report Generator System page

If the user does not have the role that allows him to access the given system, he is given a message as shown in Figure 5 below.

You chose to access the **<system name>,** however you do not have the privilege to do so. Please request the privilege by editing your user profile. Click **OK** to be redirected to your main menu.

OK

Figure 5 – Authorization error message

6.1.2 Use case: Recover lost password

In the DB2 on Campus Sign-in and Registration page (Figure 4), the student clicks on the link "Lost your password?" The system will take him to the "Lost your password?" screen, where he is asked for his email address. Figure 6 shows an example of how this screen may look like.
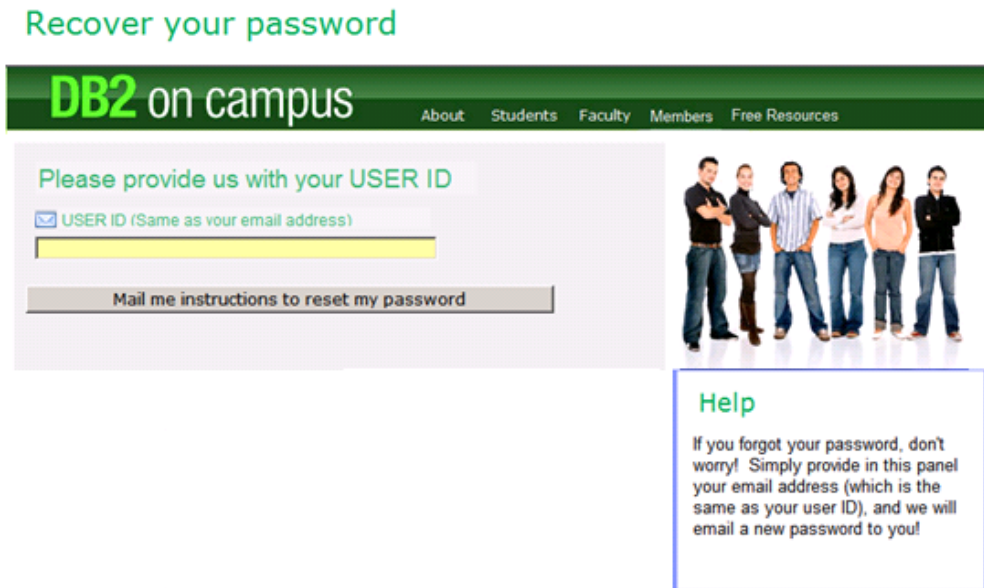

Figure 6 – Recover lost password

If the email address (User ID) is found in the system, a new temporary password is sent. The user must change the password right after logging on to the system the next time. If the user ID is not found in the system, the student can try 5 more times. After that he will be asked to send an e-mail to db2univ@gmail.com with his first name, last name, and the email address being used. The title of the email should be: "Problems with my DB2 on Campus Portal user ID". An administrator will manually have to determine what the problem is.

6.1.3 Use case: Remember me?

If a user marks the checkbox "Remember me?" in Figure 4, a cookie will be stored on the user's computer to allow the user to return to the portal without having to sign on again.

6.1.4 Use case: Register to the system

If the user clicks on the "Register" link in Figure 4, a page with registration information is displayed. Figure 7 shows an example of how this page could look.

Figure 7 – Registration page

The registration process is simple, the following **must** be completed:

1. Email address (A **_valid_** email address is used as the User ID)
2. Password
3. First name
4. Last name
5. Country

More Details:

a) The system should verify the user ID is unique (Use a unique index)

b) The system should check there are no duplicate registrations with different user IDs by using the First name, Last name, and Country as unique index keys. If a duplicate is found, a pop-up window should give the following message "Another person with the same name and country has already been registered in the system. If you registered before with a different user ID, please keep the same user ID, and press CANCEL. If you want to continue registering, please click on CONTINUE.

c) The system should check the password has at least 8 characters.

d) When the user finishes inputting his information, he will click the SAVE button. At that time he will receive a message indicating he should check his email for a message from "DB2 on Campus Portal" email ID, and that he should do it within 20 days. This email will contain a link that he needs to click to complete the registration. If this is done, he will be taken back to the DB2 on Campus Portal, to a page that will contain the message: "Your registration is now complete! Click here to log on". The link in the message will take the user to the Welcome Page to log on.

If after 20 days, the user did not click the link he got in the email, the registration information is deleted from the system. If the user clicks on the link in the email after 20 days have passed, he will receive the message: "The link has expired, you need to register your information again in the DB2 on Campus portal".

6.2 *Use cases for an administrator role*

If a user with Administrator role signed-in successfully to the portal using the "Welcome [sign-in]" link (top right corner of the "Members' Introduction" page), he will be taken to the Administrator Main Menu. This would look like Table 4 below.

Administrator Main Menu – Welcome Peter Pan!

This page is only for administrators. The following operations can be performed:

1. Manage users
   Assign roles, delete users, add users, edit user information

2. Manage questions
   Create new questions online, upload questions, set up Question Generator variables.

3. Manage tests
   Create new tests. Set up test variables.

4. Set up competitions
   Set up Online Competition System variables.

5. Generate reports
   Generate built-in and ad-hoc reports about the DB2 on Campus portal.

6. View your changes
   Explore the DB2 on Campus portal as a user with the role of your choice

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Table 4 – Administrator Main Menu Page

Figure 8 shows how the Administrator Home Page would look like.

Figure 8 – Administrator Home Page

6.2.1 Use case: Manage users

From the Administrator Home page, an administrator chooses the "Manage users" link. This will take the administrator to the "Manage users" panel listing all users in alphabetical order by last name. Table 5 provides an example.

User ID	Lastname	Firstname	Role	Operations
arfchong@ca.com	Chong	Raul	Administrator	Edit Delete
maxi@arca.com	Mesame	Orlando	Generic	Edit Delete
paolo@it.com	Serio	Paolo	Faculty Member	Edit Delete
…	…	…	…	

Table 5 – An example of the table displaying the list of users of the portal

The Edit operation allows an Administrator to edit any of the fields in the user profile for the selected user, and in addition, it allows the administrator to assign a role to the selected user. The roles that can be assigned are:

- Administrator
- Contributor
- DB2 Student Ambassador
- Faculty Member
- Professional
- Generic (default)

A user can be assigned several roles allowing him to get more access to different areas of the portal. Table 1 provided earlier in this document describes the access allowed for the different roles.

The <u>Delete</u> operation allows an Administrator to delete a selected user. A prompt to confirm the deletion must be displayed.

In addition, the following buttons will be available:

<u>1) Create</u>
The "Create" operation allows the Administrator to create a new user. He will be taken to the "User Profile" panel as described in the "Edit your profile" use case.

<u>2) Search</u>
The user can also perform a search based on the lastname, firstname and user ID to find the desired user faster. A table like Table 5 would be displayed with the results of the search.

6.2.2 Use case: Manage questions

When the Administrator chooses the "Manage questions" link he will go to the "Manage questions" panel listing all questions grouped by topic and subtopic and ordered by question ID. Figure 9 provides an example of how the questions would be displayed.

Figure 9 – "Manage questions" panel

As shown in Figure 9, besides each question there are icons for different operations:

Edit
Allows an administrator or contributor to make changes online to the selected question. Contributors can only edit the questions they created.
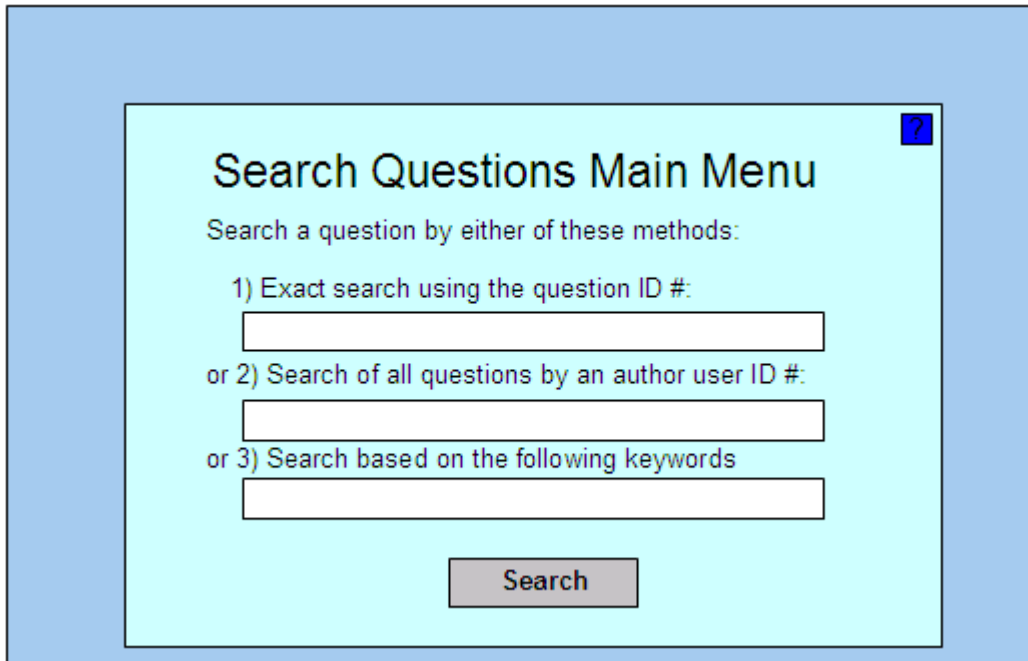
Delete
Allows an administrator or contributor to delete the selected question. A prompt to confirm the deletion must be displayed. Contributors can only delete the questions they created.

In addition, the following button will be available:

1) Search
The user can perform a search of a question. Figure 10 shows the Search Questions Main menu, which is the first screen to be displayed when you choose this link.

Figure 10 – The Search Menu

As you can see from Figure 10, you can perform a search using three alternatives:
- o Exact search using the unique question ID number
- o Search of all questions of an author using the unique author's user ID number
- o Search all existing questions given several keywords provided as search input.

Once a search is done, the question(s) will be displayed in a format similar to the one used for Figure 9 above.

2) Create
The Create link allows an administrator or contributor to create a new question. Clicking on this button takes you to the "Create a question" panel as shown in Figure 11.
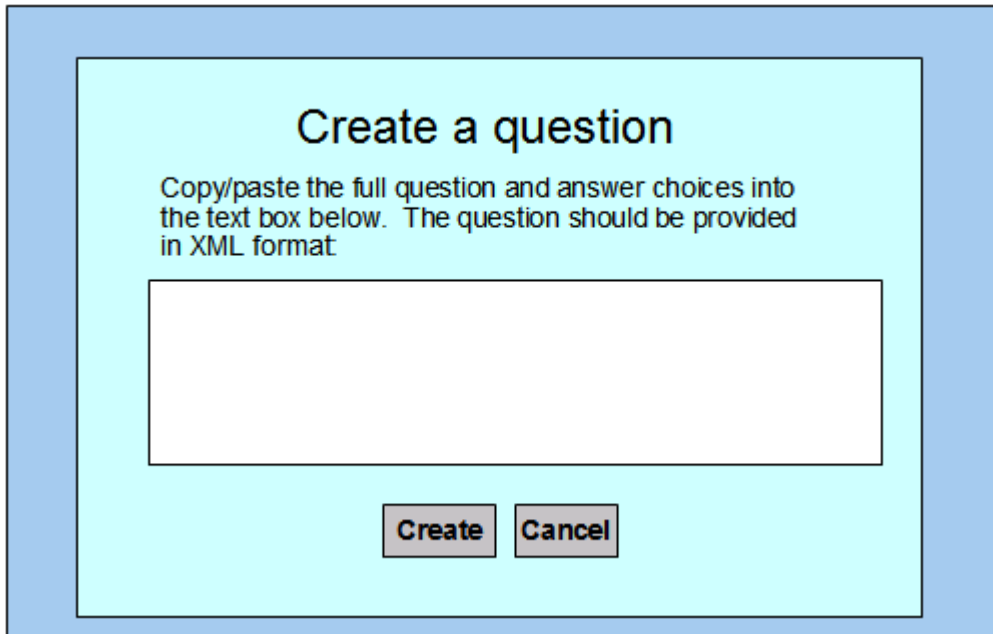
Figure 11 – Create a question

After you click Create, the system will perform the following:

1. It will verify the user_ID in the XML document maps to an existing registered user in the system. If it doesn't, it will report it as an error.
2. It will perform a SEARCH based on the keywords specified in the keywords tag that are provided in the question to be added. This search will return a list like in Figure 9 for searching a question, but there will be two other options available:
   a. CANCEL, to cancel the addition of the question
   b. CONTINUE TO ADD, to continue adding the question.
3. The question in XML format should be inserted only if it is well-formed and if it matches the XML schema (DB2 can handle this, you should ensure to capture the error SQL code sent to you by DB2 and report the problem with a corresponding error message). After the error is reported, you will be back to the same screen where the user can manually continue editing the question, or he can choose Cancel to go back to the previous menu. If there is no error, the message "Your question was successfully added!" will be displayed.

A search for a question using keywords is performed before adding a new question to minimize the number of questions that look similar.

3) **Import**
The Import link allows an administrator or contributor to import several questions at once by uploading them from a text file. Clicking on this option will ask the user to specify the local directory and file name from where the text file with several questions in XML format are stored. This file will be inserted into the DB2 database which will validate the XML documents.

6.2.3 Use case: Manage tests

When the Administrator chooses the "Manage tests" link he will go to a panel listing all the tests previously created, sorted by test number. The panel will look like in Table 6 below:

Test No	Test name	Creator	Dynamic	Test Duration (mins)	Total Questions	Operations
100	DB2 Fundamentals	rch@ibm.com	No	60	60	Edit Delete
200	DB2 DB Administration	rch@ibm.com	Yes	75	N/A	Edit Delete
300	RDA DB Design	pet@ibm.com	Yes	75	N/A	Edit Delete
…	…	…	…			

Table 6 – Manage tests

Several of the columns in Table 6 are based on the variables an administrator sets when creating a test. Other columns have the following meaning:

- Creator: The user ID of the administrator who created the test
- Dynamic: Determines whether this is a fixed test or a dynamic test. This is explained in more detail below.

In addition the following buttons are available:

1) **Search**
Allows a search for a test based on the "test number", "creator", or "dynamic" columns. The output of the search is presented in a similar way as in Table 6.

2) **Create**
Allows an administrator to create a new test. When selecting this link, a panel will be displayed as shown in Figure 12.

Create a new test

Please provide this information (All required. Default values are provided in gray):

1. Test number: _____
2. Test name: _____
3. Test duration (in mins, Min = 30, Max = 120) __75__
4. Time per question (in mins, Min = 1, Max = 10, blank = set by the XML question value if one was provided) __5__
5. Points per correct answer (Min = 0.1, Max = 5) __1__
6. Deduction points for incorrect answers (Min = 0, Max = 1) __0__
7. Name of the community qualification to obtain after passing the test _____
   _____
8. The number of times this test can be taken at most ___3___
9. The number of days that have to pass to take the test again if failed before ___7___
10. Percentage to pass the test (Min = 50%, Max = 80%): __65%__
11. Is this a dynamic test? (questions generated by the system) __Yes__
12. The description of the test (visible to test takers). Sample information for a dynamic test is provided in gray.

Instructions to take test 200: DB2 DB Administration

1. This test is free
2. There is a random number of questions; however, the test will end after **75** minutes.
3. You need **65%** to pass
4. You will be presented one question at a time selected randomly from a database
5. Each question has **5** minutes of time allocated. There will be a counter keeping track of the amount of time left per question. If you finish before the time ends, click on the SUBMIT button.
6. Once you answer a question and click the SUBMIT button, or once the **5** minutes allocated per question have passed, you will NOT be allowed to go back to change your answer.
7. Correct answers are worth **1** point. Incorrect answers will be deducted **0** points.
8. The test is open book
9. If DB2 is installed in the machine where you are taking the test, you are free to verify your answers. Be aware about the time though!
10. This system will not be responsible for power outages, network problems, or other problems. If these unfortunate events happen while you are writing the test, the test will be considered finished and marked with the amount of questions answered at the time. Make sure you choose a good computer with a good internet connection before you write the test!
11. You will have **3** chances to write this test, **7** days apart. If you do not pass the test after **3** tries, you will not be allowed to write the test again.

Figure 12 – Creating a new test

Once the Administrator has input the desired values, he can click the SAVE button, otherwise he can click on CANCEL.

If the Administrator clicks on SAVE, depending on whether the test is dynamic or not, the administrator will be presented with a different panel:

For a **fixed test**, the administrator will be presented with a list of questions he can choose from to add to the test. The list of questions can be presented as in Figure 9 with the operation option to "select" the question for the test.

For a **dynamic test**, the administrator will be presented with the panel below (Figure 13) where more variables need to be set:

Setting up a dynamic test

Please provide this information (All required. Default values are provided in gray):

1. Number of subtopics per test (Min = 1, Max = 21): __10__
2. Number of "Very easy" questions to reach proficiency (Min = 0, Max = 5): __1__
3. Number of "Easy" questions to reach proficiency (Min = 0, Max = 5): __1__

4. Number of "Intermediate" questions to reach proficiency (Min = 0, Max = 5): __1__
5. Number of "Difficult" questions to reach proficiency (Min = 0, Max = 5): __0__
6. Number of "Very difficult" questions to reach proficiency (Min = 0, Max = 5):__0__
7. Points per bonus question (Min = 0.5, Max = 5):__1__

Figure 13 – Setting up a dynamic test

Once the Administrator has input the desired values, he can click the SAVE button; otherwise, he can click on CANCEL. The message "Test created" will be displayed.

6.2.4 Use case: Set up competitions

The administrator can set up the variables shown in Figure 14 for the Online Competition System:

Setting up competitions

Please provide this information (All required. Default values are provided in gray):

1. The number of questions to be completed (Min = 5, Max = 30): __10__
2. The amount of time for the competition in minutes (Min = 15, Max = 60): __20__
3. The maximum number of teams competing (Min = 2, Max = 20): __10__

Figure 14 – Setting up competitions

The minimum number of teams competing is fixed at 2.

6.2.5 Use case: Generate reports (Use pureXML)

When an administrator clicks on the "Generate Report" link, a screen will be displayed as shown in Figure 15, where he will be able to run the following pre-defined reports:

Generate reports

Please input a timeframe for the report. From: __mm/dd/yyyy__ To: __mm/dd/yyyy__

Choose from the following reports to run:

1. General summary report
2. Most difficult subtopics
3. Most difficult and easiest questions
4. Comments
5. Online Competition System Ranking report
6. Online Competition System Results report
7. Ad-hoc report

Figure 15 – Generate reports

Below is more detail about each report:

1. General Summary report

A general summary report will contain this information for a given period of time:
o The total number of students writing a test sorted by the test code and name
o The total number of students who passed and failed
o The average number of tries for the students who passed
o The highest, lowest and average marks.
o The country/city/university with the most number of students writing/passing/failing the test

2. Most difficult subtopics

This report lists the 5 most difficult subtopics ordered by difficulty (highest to lower) for a given period of time grouped by test. (Stats may have to be collected each time at the end of the test for each student).

3. Most difficult and easiest questions.

Though questions will be added constantly to the database, this report will list the top 10 most difficult and easiest questions for a given period, including the author's name and author's email address. The information should be grouped by test.

4. Comments

This report shows all the comments about tests sorted by date, and city for a given period of time. All information is grouped by test.

5. Online competition system ranking report

For a given period of time, a ranking of the first 10 teams sorted in order of wins (highest to lowest). Each team in the list would be a link, which when clicked would provide the member names, member email addresses, university, city, and country information.

Teams will receive 1 point just for participating. In addition, the winning team will win as many points as challengers for one competition.

The report should also include the total number of competitions performed in the period.

6. Online competition system results report:

For a given period of time specified by the user, he will be able to see a report that displays all the dates where competitions took place. Within each date, there maybe several competition events that took place sorted by GMT time (earliest to lowest), and they will be provided as links. The user can click on these links which will provide this information:

- The teams who participated listed in order (Winner first, then 2nd place, etc).

For example:

Sep 10/2008:
    Competition started @ 10:00 GMT
    Competition started @ 10:10 GMT
    Competition started @ 18:00 GMT
Oct 08/2008:
    Competition started @ 21:00 GMT

After clicking on one of the above links, you would see a table like this:

Ranking	Team Name	Country	City	University
1 (Winner)	We Rule	Canada	Toronto	UofT
2	BlahBlah	China	Beijing	Beijing U.
3	Brains	Italy	Pavia	U of Pavia

7. Ad-hoc report
An administrator is allowed to run any SQL/XQuery statement desired on a command line text box.

6.2.6 Use case: View your changes

From the Administrator Home page, an Administrator can choose the "View your changes" link to try out the changes he made. After clicking this link, the administrator will be prompted with the role(s) he wants to choose to simulate accessing the portal with a user that has those roles. After selecting the desired roles, the administrator will be taken to the home page of a user having the roles selected. Using a Escape key combination or a especial link/window, the user can go back to the administrators main menu, and behave again as an administrator.

6.3 *Use cases for a Generic role*

For a user with a "**Generic**" role (default), his Main Menu page would look like Figure 15.

Susan's Main Menu Page – Welcome!

1. Online Test System
   Take an online free test, review your results, and print your qualification documents.

2. Online Competition System
   Practice your DB2 skills and have fun! Compete solving DB2 problems with people online. The team finishing most problems in the least amount of time wins!

3. Resume Builder
   Build your resume in minutes!

Figure 15 – Generic role Main Menu Page

Figure 16 shows how the Generic role main menu would look like. The area highlighted with a red ellipse is common to the pages for other roles.

Figure 16 – Generic role Main Menu Page

6.3.1 Use case: Edit your profile

This use case applies to all roles. A user can edit the personal information he provided at registration time by clicking on the "Edit your user profile" link. The user ID will be presented but cannot be edited. Changing the password will prompt a window to appear (similar to the use case "Change your password" described below). In addition to the fields shown at registration time, more fields can be completed (All of these fields are optional):

1. Middle name
2. Email address #2. (an option will be provided besides this item to make it the default email address to use rather than the User ID email address)
3. Date of Birth
    o Day
    o Month
    o Year
4. Home telephone number
5. Work telephone number
6. Cell phone number
7. Type of user (Possible options: Blank (default), Student, Faculty Member, Professional)
8. Job title
9. Company/Educational Institution Name
10. Company/Educational Institution Address
11. Company/Educational Institution City
12. Company/Educational Institution Postal Code
13. Company/Educational Institution Web site

The following optional field (text form) **will be visible, and searchable by other users**. A clear message indicating this should be provided. The user is encouraged to include information about himself in free format. In gray color suggestions are provided.

A paragraph about yourself

Your interests

Projects you are working on

Keywords you'd like to be used for easy searching by others

The following optional fields would be used to generate a resume:

14. Education:
   o   High school name and years completed
   o   College name and years completed
   o   University name and years completed
       ▪   Bachelor's
       ▪   Master's
       ▪   PhD
This form should consider cases where students attended several institutions. For example, a student may have attended two high schools because his family moved to another city or country.

15. Certificates or other documents
16. Job Experience
   o   Company name
   o   Position name
   o   Position description
   o   Work Period
   o   Skills used
17. Other skills
18. Picture (Upload)

For the DB2 on Campus Newsletter:
   19. Check box: Subscribe me to the DB2 on Campus newsletter!

The user is presented with all his information, and he makes the appropriate changes. Clicking on the SAVE button will save all the information. Clicking on the CANCEL button will take him back to the corresponding Main Menu. Changes to the user ID are not allowed, but the user is given the choice to specify field "Email #2" as the default email address. The User ID/password combination has to be verified as described in an earlier use case. The Resume Builder System uses the user profile information to generate a resume.

6.3.2 Use case: Requesting access to other systems

In the user profile screen (When editing a profile), there should be an option/button for users to request access to other systems based on their role. When clicking on this option, the following information should be displayed as shown in Table 7.

All users are granted the "generic" role by default regardless of the type of user chosen. The following roles and corresponding system access is listed:

Role	Privilege
Generic	Access to most systems except the Matching system, Questions Generator system
Professional	Same as the Generic role, but with access to the Matching system
Faculty Member	Same as the Generic role, but with access to the Matching system
DB2 Student Ambassador	Same as the Generic role, but with access to the Matching system, and access to the DB2 Student Ambassador area
Contributor	Same as Generic role, but with access to the Matching system and the Questions Generator system

Table 7 – Requesting access to other systems

If the user would like to request access for a "Faculty Member" role, he needs to provide the following information which would be submitted through the system to the administrator. The administrator will then perform a manual check:

- A URL showing the applicant's affiliation to an educational institution. The user in the meantime will be given a "Generic" role.

If the user would like to request access for a "Professional" role, the user must complete the following fields in his profile:
- Work telephone number
- Company name
- Company Address
- Company City.
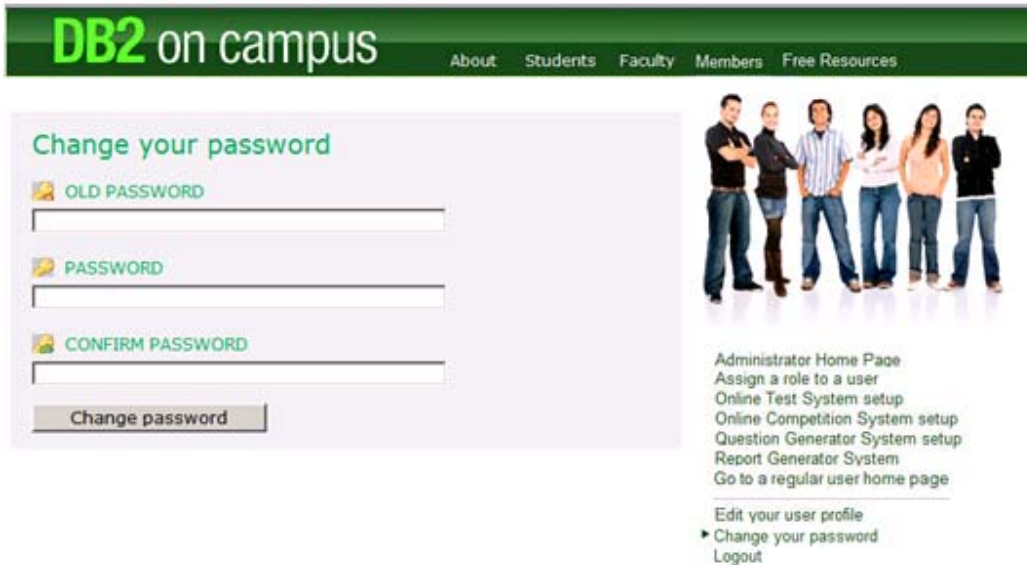
This will be later checked manually by an administrator who would manually assign the "Professional" role to this user if everything checks up fine.

Contributors and DB2 Student Ambassadors are currently chosen manually based on personal interviews or relationship to IBMers or the administrator. These roles will be assigned manually by an administrator.

6.3.3 Use case: Change your password

This use case applies to all roles. A user can change his password at any time by clicking on the "Change your password" link. A screen similar to Figure 17 would be displayed.

Figure 17 – Change your password

6.3.4 Use case: Logout

This use case applies to all roles. A user can log out of the system by choosing the logout link. An informational message should be displayed to confirm the user is now logged out. The user will be taken back to www.db2oncampus.org.

6.3.5 Use case: Working with the Online Test System

This use case occurs when the the Online Test System link is invoked from the "Members" menu, the "Generic role", "Professional" and "Faculty Member" main menu. The user has to be signed-in to the system. Figure 18 shows the Online Test System panel.

Online Test System

1. Write a test

2. Review previous test results

3. Generate your community qualification

Figure 18 – Online Test System menu

6.3.5.1 Use case: Take a Test

When a user chooses to take a test, he would be presented with a panel as shown in Figure 19.

Figure 19 – Take a Test

From the figure, a user selects the desired test to take. The system checks that the student has not failed the test more than 2 times, and that it has passed at least 7 days since the last time he failed the test (based on the variables set by the administrator in a previous use case).

If the student failed the test more than two times he will be provided a message indicating he can no longer write the test.

If 7 days have not yet passed since the last time the student failed the test, a message indicating how many days he needs to wait will be displayed.

If the student has not failed more than 2 times and 7 days or more have passed, the student will be provided with a screen describing the test. This information is taken from the Administrator's use case described earlier in this document.

After the test is described, there will be a drop down box to choose the language to use to write the test (eg: English, Italian, Spanish, Portuguese, etc). The drop down will only give a choice for a particular language when the total count of questions in the database in a given language is more than 300 questions. Once this choice is made, the following will be clearly displayed:

"When you click this button, the test will start in Italian"
This assumes the language chosen from the drop down list was Italian.

And the button should read "Start Test".

6.3.5.1.1 Use case: Start the Test
When the "Start Test" button is pressed, the system will provide a question from the database, and display it in HTML as a multiple choice question. If the test is a fixed test, the questions

will be provided in order one after the other. If the test is a dynamic test, the system will randomly select the questions one after the other.

Each multiple choice question will have one button "SUBMIT" to move on to the next question before the time limit of the question expires, otherwise, if the question time expires the system automatically moves to the next question. At the top right corner of each question, there will also be a button "END THE TEST". This will be explained in more detail in the next use case.

6.3.5.1.2 Use case: End the Test

At the top right corner of each question, there will be a button to END THE TEST. When this button is clicked, the following warning message should appear:

"Are you sure you want to end the test? Normally you should continue until the test time limit ends".

If the student clicks YES, the test ends, otherwise he goes back to the question he was working on, but the time continues ticking for that question.

When the time limit is reached for the test, the student will be presented with a message indicating that the test has ended. He will also be presented with a small bar graph showing the results per section, and if the student passed or not. It will also compare how many questions of a given section were provided, versus how many were answered successfully.

If the student did not pass the test, he will be given the message:
"Sorry, you did not pass; however you can write this test up to 3 times, 7 days apart"

There will be a text box where students can write comments about the test.

6.3.5.2 Use case: Review previous test results

When a user chooses the "Review previous test results" link, he is presented with a list of tests he has taken in the past. The following information can be reviewed for each test:

- o   The date the test was written
- o   The mark
- o   If he passed or not.

6.3.5.3 Use case: Generate your Community Qualification

When the user clicks on the link "Generate your community qualification", the use is displayed with the list of tests he passed. Besides each test, the user can click on the "Generate" button to display the corresponding Community Qualification as a PDF document which can be printed or emailed.

6.3.6 Use case: Generate a resume with the Resume Builder System

This use case occurs when the the Resume Builder System link is invoked from the "Members" menu, the "Generic role", "Professional" and "Faculty Member" main menu. The user has to be signed-in to the system. Figure 20 shows the Resume Builder System panel.
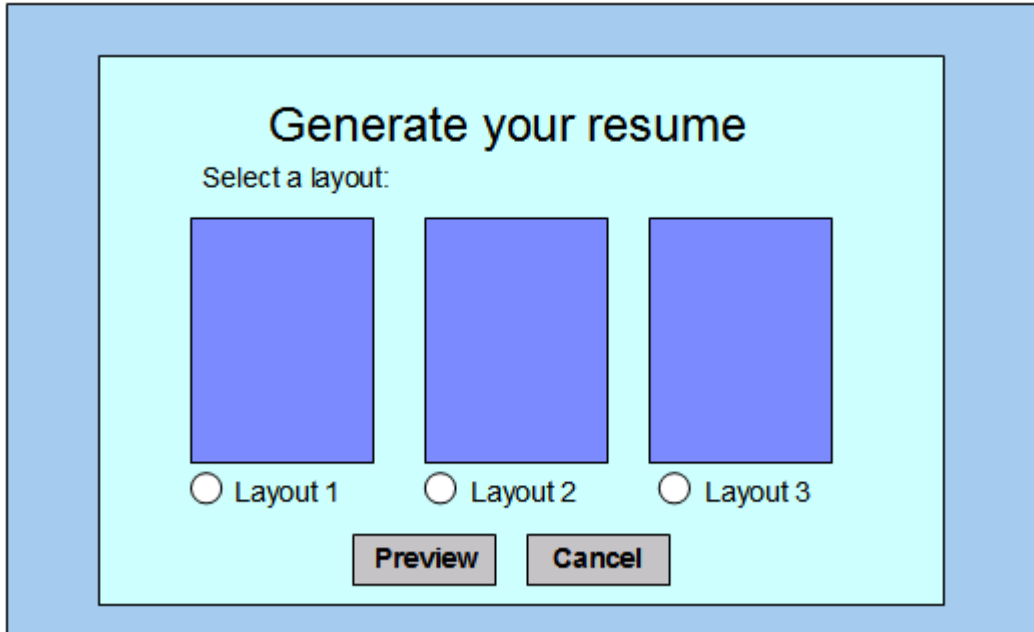
Figure 20 – Resume Builder System

After a user chooses the desired layout (small picture of a sample resume), he can choose Preview. This will take him to another screen where the resume is generated for preview containing all relevant information obtained from the user profile. From the preview screen, the user will have the choice to print his resume, or send it to his email address as an attachment in PDF format. Otherwise, if he clicks on CANCEL he will return to his Main Menu.

The number of resume layouts may increase over time. Changes to the information in the resume need to be done by editing the user profile information.

6.3.7   Use case: Compete using the Online competition system

This use case occurs when the Online Competition System link is invoked from the "Members" menu, the "Generic role", "Professional" and "Faculty Member" main menu. The user has to be signed-in to the system. Figure 21 shows the Online Competition System Welcome page.
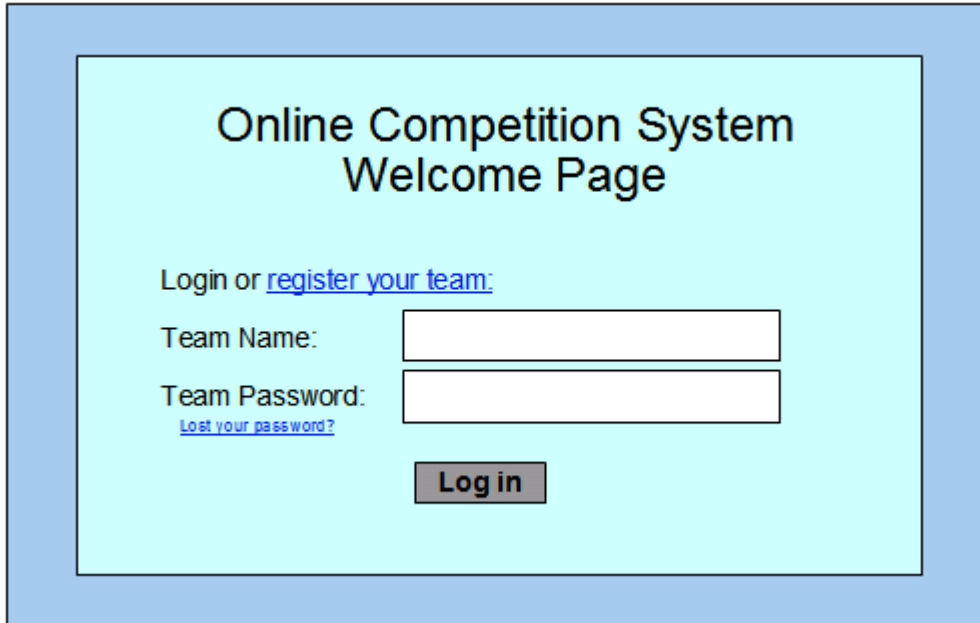
Figure 21 – The Online Competition System Welcome Page

6.3.7.1 Use Case: Register a team to the system

When a user chooses the "Register your team" link, the following information is requested (All fields are required):

1. Team Name
2. Team Password (8 characters minimum)
3. University Name
4. City
5. Country
6. Members. (Minimum = 1, Maximum = 4).

Each member must have obtained at least one community qualification in order to participate. Team members must be from the same university, city and country. The members need only input the User ID they used when they registered to the DB2 on Campus portal.

The registration process should check that the Team Name is unique in the system, and the password has at least 8 characters.

6.3.7.2 Use case: Recover team lost password

In the Online competition system Welcome page, the student clicks on the link "Lost your password?" The system will ask for the team name. After the students inputs this information and clicks to continue, the system will send an email to all the members of the team with a new temporal password that must be changed after first login to the competitions system.

6.3.7.3 Use case: Log on to the Online competition system

From the Online competition system Welcome page, a student fills out the team name and team password and clicks the "Log in" button.

The system will verify that the team name/password matches. If they do not match, the error message "Team name or password is incorrect" is displayed. This can be done for 5 times. After that, the user will be taken to the screen to recover the team password. If they match, the team is allowed to continue to the Online Competition System Team Main Menu shown in Figure 22 below.
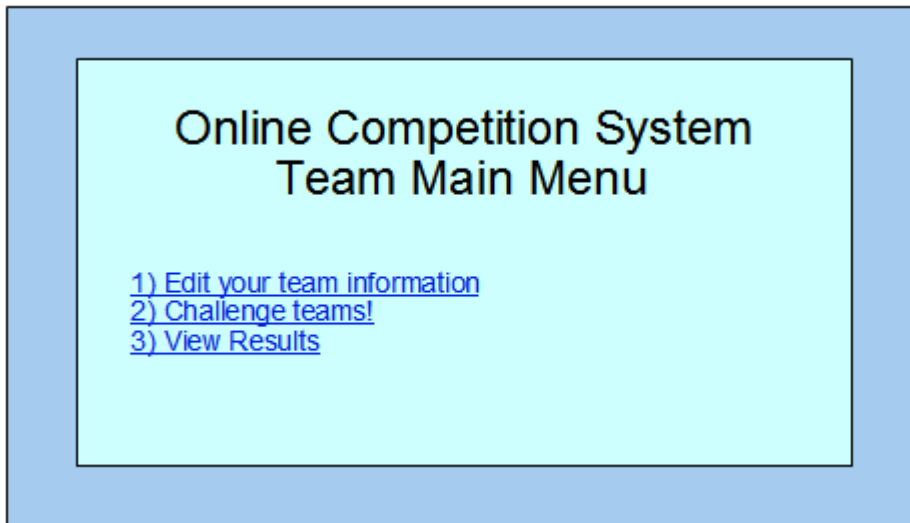
Figure 22 – The Online competition system Team Main Menu

6.3.7.3.1 *Use case: Edit team information*

After the team logs on, the system will have an option to Edit the team information provided at team registration time. The team is presented with all their information, and they make the appropriate changes. If a team member is removed or changed, the information of the previous member will be kept in a non-editable history section which will include the date and time of the change, and the User ID of the person who made the change. Clicking on the SAVE button will save all the information.

6.3.7.3.2 *Use case: Verify the system to use for the competition*

After a team logs on, and chooses the "Challenge teams!" option, it will first be taken to a screen where it is asked to verify the system has the right settings. If not, the team will not be allowed to compete. After a message in this panel provides this information, the team is asked to click the VERIFY button to perform the following checks:

- Verify that DB2 Express-C is installed and the level by running the command: db2level
- Verify that the current instance is up and running: db2start
- Ensure a clean SAMPLE database exists:
  o db2 drop db sample
  o db2sampl –xml -sql
- Verify the connection speed to the internet is adequate.
- Verify pop-up settings on the browser

If all of these checks are OK, the team will be taken to the "Challenge Teams!" screen where they can see all the teams currently logged on into the DB2 Competitions System, if they are participating in a competition, and their current standings.

6.3.7.3.3 Use case: Challenge teams!

From the "Challenge Teams!" screen, the team will select from this screen another team that is logged on which is not already participating in a competition, and will click on the CHALLENGE button. This will pop up a window in the other team's computer, asking them if they accept the challenge, and the minutes to wait for the competition to start. If they do, they will click OK and input the number of minutes to wait for the start. Then on each computer a pop up will appear with a countdown. This will allow for time to challenge other teams. As new teams accept the challenge, the countdown will appear on their machines, and a current standing window will show the teams participating in the competition and their standings. This window will be accessible at all times. Before the competition starts, any of the challenged teams can request more time in the countdown window if they need preparation, but this time cannot exceed 15 minutes.

In addition, the following message will also be visible to all competitors:

Online Competition rules

1. This competition consists of 5 hands-on questions.
2. Each correctly submitted answer will give you 10 points.
3. Each incorrect submission will deduct your team 5 points.
4. Questions are submitted one at a time, and you cannot move to another question until successfully answering the current one.
5. The winner of this contest is the team who finishes answering correctly all questions first
6. If after 25 minutes, there is no winner, the system will end the competition, and the team with the highest score up to that point will be the winner!

After the countdown finishes, the competition starts with a pop up window and the message "COMPETITION STARTED!" and a beeping sound. Students will be provided one question to work on at a time. The questions will be taken from question generator templates (i.e: XML documents starting with the tag "template"). Each competitor will be using the same template, however the multiple-choice answer will be in different order as described earlier in this document (QGS system). This will help prevent plagiarism between teams. The window with the current standings will also show the time left in the competition, which would be a countdown of 25 minutes.

Students will try to obtain the right answer to the questions provided by working hands-on on their locally installed DB2 Express-C copy, and will submit the answer through the system as they finish the question by choosing the right multiple-choice answer and clicking on the SUBMIT button.

The system will validate the correctness of the answer. If the answer is not correct, the system will ask the student/team to resubmit again, and it will keep track of the number of wrong submissions in order to deduct points.

Once the student/team answers correctly, the system will provide the next question. The system should be able to display the standings of all teams as the competition is taking place. There will not be a time limit per question; however, the team will not be able to move past a question until it's correctly answered.

The competition will end for a team after it finishes all the questions successfully, or if the time runs out. At this time the current standings window will show the winner.

6.3.7.3.4 Use case: View Competition Results (Use pureXML)

From the Online competition system Main Menu, a team member can click on the "View Rankings and Results" link. This will take him to a panel where he can choose two types of reports:

Ranking Report:
For a given period of time specified by the user, he will be able to see a report that includes a ranking of the first 10 teams sorted in order of wins (highest to lowest). The member names and member email addresses of the teams should NOT be displayed.

The report should also have this message:
"Teams will receive 1 point just for participating. In addition, the winning team will win as many points as challengers for one competition"

Results Report:
This reports shows competition information for a given period of time.

These reports are similar to the ones described in use case 6.2.5 Generate Reports. Review that use case for more details.

6.4 *Use cases for a Faculty member or Professional role*

For a user with a "**Faculty, or Professional**" role, his Main Menu page would look like Figure 23.

Faculty Member / DB2 Professional Home Page – Welcome Mary!

1. Online Test System
    Take an online free test, review your results, and print your qualification documents.

2. Online Competition System
   Practice your DB2 skills and have fun! Compete with people online solving DB2 problems. The team finishing most problems in the least amount of time wins!

3. Resume Builder
   Build your resume in minutes!

4. Matching System
   If you are a faculty member, indicate when your students would be available for a presentation (fixed subtopics) from a DB2 professional. If you are a DB2 professional (or DB2 Student Ambassador), indicate when you would be available to present at a university. This system will match the schedules from the two parties.

Figure 23 – Faculty or Professional role Home Page

6.4.1 Use case: Working with the Matching System

<< Raul: To be developed later >>

6.5 *Use cases for a DB2 Student Ambassador role*

For a user with a "**DB2 Student Ambassador**" role, his home page would look like in Figure 24.

DB2 Student Ambassador Home Page – Welcome Mary!

1. Online Test System
   Take an online free test, review your results, and print your qualification documents.

2. Online Competition System
   Practice your DB2 skills and have fun! Compete with people online solving DB2 problems. The team finishing most problems in the least amount of time wins!

3. Resume Builder
   Build your resume in minutes!

4. Matching System
   If you are a faculty member, indicate when your students would be available for a presentation (fixed subtopics) from a DB2 professional. If you are a DB2 professional (or DB2 Student Ambassador), indicate when you would be available to present at a university. This system will match the schedules from the two parties.

5. DB2 Student Ambassador zone
   A DB2 Student Ambassador can track his DB2 User Group and ambassador activities, post pictures, and request his IBM letter of recommendation at the end of his period. In this zone, he can also have a page where he can put links and any information he wishes pointing to his DB2 user group or other sites.

Figure 24 – DB2 Student Ambassador role Home Page

When a user clicks on the "DB2 Student Ambassador zone" link, he will be taken to a panel as shown in Figure 25.

DB2 Student Ambassador zone

1. Complete your DB2 Student Ambassador profile

2. Keep track of your DB2 User Group and ambassador activities

3. Show it to the world!

4. Requesting an IBM letter of recommendation

Figure 25 – DB2 Student Ambassador Zone

6.5.1 Use case: Complete your DB2 Student Ambassador profile

Clicking on this link will take the user to the user profile screen, where the DB2 student ambassador must complete one more field:

1. Input the date he started as a DB2 Student Ambassador (mm/dd/yyyy). This date cannot be changed after input.

6.5.2 Use case: Keep track of your DB2 user group and ambassador activities

From this link, a DB2 Student Ambassador can add/edit his activities as ambassador and add information about his DB2 User Group by clicking on the "Keep track of your DB2 group and ambassador activities". When this link is clicked a screen will give the user two choices:

- Edit DB2 User Group information
- Edit your ambassador activities

If the user clicks on "Edit DB2 User Group information" he will be asked to edit a template like this which is visible and searchable. There are sample entries shown in Table 8 below.

Field	Value
DB2 User Group Name	DB2UGNEA
Country	Argentina
City	Resistencia
University Name	UTN-FRR
President	Mario Piz
DB2 User Group e-mail address	db2ugnea@gmail.com
DB2 User Group Web page	www.db2ugnea.ar.com
Picture of members	<Picture>

Table 8 – Sample entry with DB2 User Group information.

If the user clicks on "Edit your ambassador activities" he will be asked to edit a template like this which will be used to generate the IBM letter of recommendation. There are sample entries in Table 9 below:

Date (dd/mm/yyyy)	Event name	Type	Attendance	Picture
15/01/2008	Translation of DB2 Express-C book	N/A	N/A	
20/03/2008	Replication of speech "DB2 in the IOD world"	Speech	100	<<One picture of the event, smallest resolution>>
25/04/2008	DB2 Overview Course	Course	20	<<One picture of the event, smallest resolution>>
25/06/2008	Replication of course at	Course	35	<<One picture of the event,

	university ABC			smallest resolution>>

Table 9 – Sample entry with DB2 Student Ambassador activity information.

6.5.3 Use case: Show it to the world!

When this link is chosen, the DB2 Student Ambassador is presented with a text form where he can input html with free format information. This information will be visible. The content must first be approved by an administrator before being published online.

6.5.4   Use case: Request an IBM letter of recommendation

A DB2 Student Ambassador can request an IBM letter of recommendation after 6 months have passed since he started as an ambassador. When he clicks this link, the system will check if 6 months have passed based on the field that was stored in the personal information screen. If 6 months have not passed, a message will be displayed indicating this; otherwise the system will send an email to db2univ@gmail.com including the information from the ambassador activities, and where the email title is "Request for IBM Letter of Recommendation"

6.6 *Use cases for a Contributor role*

For a user with a "**Contributor**" role, in addition to other roles, he will have this extra item added at the end of his home page (Figure 26):

Questions Generator System
   Add/delete/edit/search questions

Figure 26 – Contributor's Home Page

6.6.1 Use case: Manage questions

   A contributor will not have a main menu of his own. Choosing the Questions Generator System link will take the user to the panel as shown in Figure 9 (use case 6.2.2 Manage questions). A contributor cannot delete a question however, unless he was the one creating it.

6.7 Use cases under the "Free Resources" menu item

When the user clicks on the "Free Resources" menu item in Figure 2, a page will be displayed with the information shown in Figure 27.

Free Resources

This section is for anyone interested in DB2. All resources are free to use.

Free DB2 on Campus videos
<<Link to channeldb2.com/oncampus>>

Free books
Link to Wiki with books → create nice interface with roadmap first.

Link to redbooks Link to developerWorks Document Exchange System Everyone contributes! If you have a nice tip, article, piece of code, entire DB2 application you would like to share with others, post it in this system. Reviewing the Document Exchange System does not require you to log on; however, you do need to log on if you plan to post something.

Figure 27 – Options under the "Free Resources" Menu Item

6.7.1 Use case: Sharing information with the Document Exchange System

<< Raul: To complete in the future >>

6.8 Use cases under the "Students" menu item

In addition to the links provided in the front-end, a new link "Search DB2 user groups or DB2 Student Ambassadors" and "Apply to become a DB2 Student Ambassador" should be added.

6.8.1 Use case: Search DB2 user groups or DB2 Student Ambassadors

From the DB2 on Campus portal Welcome Page, if the user clicks on the "Students" menu, he will see a link "Search for DB2 User Groups or ambassadors" as shown in Figure 28.
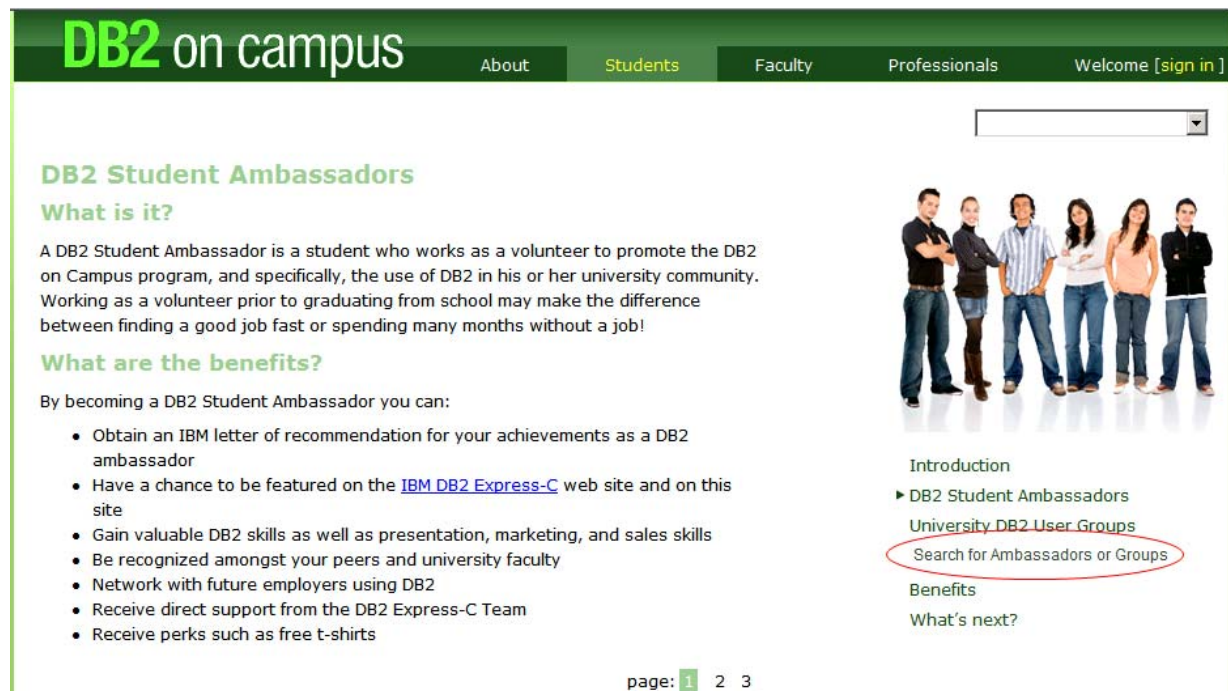

Figure 28 – Search for Ambassadors or Groups

When this link is chosen, he will be taken to a screen where a search is performed based on all or some of the following criteria:

1. Geography (Africa, Asia, Caribbean, Europe, Latin-America, Middle-East, North-America, Pacific)
2. Country
3. City
4. University

After clicking on the SEARCH button, the system should list DB2 User Groups and DB2 Student Ambassadors that meet these criteria. Each result in the list would be a link. When the user clicks on the link, he would get more information about the DB2 User Group or the ambassador (This information is stored by a DB2 Student Ambassador into the database from the DB2 Student Ambassador Main Menu). In the case of clicking on an ambassador, only the text form information that has been marked as visible in the user profile page for an ambassador will be displayed.

6.8.2 Use case: Apply to become a DB2 Student Ambassador

From the Student Main Menu, a student can apply to become a DB2 Student Ambassador by choosing the link "Apply to become a DB2 Student Ambassador". Choosing this link will display following message:

In order to apply for a DB2 Student Ambassador position, ensure you have generated your resume using the link "Generate your resume" from the student main menu. Once this is done, read the following information. If you agree with the duties of a DB2 Student Ambassador, click on the "I agree" button:

A) DUTIES OF DB2 STUDENT AMBASSADORS

2. Establish a DB2 User Group in your university
   - This is an informal support group which can be run any way you want.
   - OPTIONAL: Create a Web page (and update it at least once every month). Here is an example: http://www.db2ug.com.ar/
   - Advertise in the university bulletin board or with banners the fact that this DB2 User Group has been established, and encourage other students to join.
   - Join the DB2 on Campus group in Facebook.com (More details will be provided if you decide to apply as a DB2 Student Ambassador)

3. Translate presentations/courses from English to your language if required.

4. Organize events such as speeches or courses in your university, close-by universities, companies, high schools, etc.

5. Post at least three entries in the DB2 Express-C forum. Questions, answers or (positive) comments are all fine.

6. OPTIONAL: Become an IBM Certified Database Associate by passing the DB2 Certification Exam 730 within your period as DB2 student ambassador.

7. At the end of your DB2 Student Ambassador period:
   - Help interview your replacement.
   - Help train your replacement.

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8. Provide any feedback/ideas/templates you may have to improve the program.

9. Be innovative! Remember IBM is an innovative company! For example the students from the university UTN-FRR in Resistencia, Argentina, organized an SQL challenge using DB2 Express-C. You can for example, organize different courses using DB2 Express-C. A popular one would be a course to prepare for the DB2 Certification test!

10. Ensure you document everything you are doing, and take pictures. You can keep track of your activities through this DB2 on Campus Portal. All of these will be used to prepare a letter of recommendation at the end of your period as ambassador. The more activities you perform, the more we can add in your letter!

B) BENEFITS OF BECOMING A DB2 STUDENT AMBASSADOR

1. A letter of recommendation from IBM will be provided with detailed information about the activities performed as an ambassador. This letter should help the student find a job more easily after he/she graduates.

2. The DB2 student ambassador will be in contact with IBM employees, establishing a good network with them and acquiring valuable skills.

3. The DB2 student ambassador will develop DB2 technical skills as well as presentation and marketing skills. These are all very valuable in today's job market.

4. The DB2 student ambassador will gain recognition amongst other students in the university.

5. The DB2 student ambassador *may* receive perks such as t-shirts, and books. They may be featured as well in the IBM DB2 Express-C Web site if they are very active as ambassadors.

At the end of the above message, there should be two buttons: "I agree" and "I don't agree". If the "I don't agree" button is clicked, the student will go back to the Student Main Menu screen. If the "I agree" button is clicked, a new window opens with the following form to complete:

1. Write a small paragraph (No more than 100 words) indicating why you would be a good DB2 student ambassador.
   <Space for the person to type>

2. Indicate the period of time you are committed to work actively as a DB2 student ambassador (minimum of 6 months). You should start within one month of being accepted as DB2 Student Ambassador.
   From: <Little Calendar to choose from>   **To**: <Little Calendar to choose from>

3. Attach the resume created when you chose the link "Generate your resume" from the Student Main Menu.

At the end of the form there should be the buttons "Submit" and "Cancel". Submit will send the above form and resume to this email address: db2univ@gmail.com. Clicking on cancel would take you back to the Student Main Menu.

7   To do/fix in the future

DB2 Student Ambassador zone: Here the student can edit his profile, add what he wants to make visible, list his activities, put a schedule, pictures.

Faculty zone:
User/role can input his research project and interests, as well as a list of courses he teaches. Users who view this information may want to contact this faculty member for collaboration (joint research).

Professional zone:
This user/role can schedule a presentation about IBM software with university authorities through the system. A professional can be an IBMer.

Use case: Subscribe/unsubscribe me to the DB2 on Campus Newsletter

This is similar to the use case 5.1.4 "Subscribe to the newsletter"; however, the user is already logged on. He will be taken to the screen "Edit your personal information" and asked to check or uncheck the checkbox to join the newsletter depending on whether he wants to subscribe or unsubscribe to the newsletter respectively.