Development of Curriculum Plan System using Ruby on Rails Framework

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Background - 1

- SIM University is part of the SIM (Singapore Institute of Management) Group.

SIM University

SIM Global Education

SIM Professional Development

- 1992 - the Singapore Ministry of Education (MOE) appointed SIM, its parent organization, to run the Open University Degree Programme (OUDP) in collaboration with The Open University of The United Kingdom (OUUK).

Background - 2

- 2002 - the OUDP was granted accreditation status by OUUK and renamed SIM Open University Centre (SIM-OUC).
- January 2005 - MOE granted SIM the approval to form SIM University
- 14 April 2005 – UniSIM was formally set up. With its founding, UniSIM assumed direct responsibility for SIM-OUC's enrolment, which currently numbers about 8,000 students.

Curriculum Plan System - 1

- UniSIM has 4 academic schools:
  - School of Arts & Social Sciences
  - School of Business
  - School of Human Development & Social Services
  - School of Science & Technology
- Each school conducts many different programmes of study.
- Each programme comprises several courses.
- Some courses are common to other programmes from the same school as well as from other schools.

Curriculum Plan System - 2

- Any programme of study can be proposed by any school but must be approved by the Academic Board.
- Any course amendment must also be approved by the Academic Board.
- A course can be retired or presented at different times, e.g. every January or July or on every alternate January.

Curriculum Plan System - 3

- A course can be 3 cu, 4 cu, 5 cu, 10 cu. 5 cu is about 6 weeks of 3 contact hours of study = 18 hours.
- A course can be a major elective, minor elective, lab-based or non-lab-based.
- A course can be a pre-requisite for another course.
- There are other university core courses (UCORE) which must be taken in some programmes.

Difficulties Encountered

- All curriculum plans were prepared in standalone Excel spreadsheets.
- These Excel spreadsheets were stored in a shared folder on a server.
- Passwords were used to allow editing. However, this is a single-user system. One user can use the system at any one time.
- Updates to the spreadsheets were not done timely. Some updates were even unintentionally overwritten by other staff members.
- Duplication of course details were found.
- Data consistency could not be maintained.
- No central storage of common data.
- Difficult to consolidate a curriculum plan quickly.

Proposed Solution

- Web-based application system which can be accessed by anyone from the Intranet and Internet
- Set up database for common data
- Use Open Source Software to minimise cost as well as learning from best practices from the community

Purpose of Project

- To improve and computerize our existing system of curriculum plans so that we can achieve the following:
  - Linkage between course registers by discipline, Master course register and each individual curriculum plans.
  - Availability of control in terms of when update of any courses in course register would be released to be reflected on the respective curriculum plans

Proposed Solution – Version 1




Acad staff

Deans

Admin staff

Administrators

To reside on the SST Server in the School Of Science & Technology

Curriculum Plan System (CPS)

To develop CPS using Ruby on Rails Web Framework

MySQL DBMS

On our Intranet

Some General Requirements

- Maintenance
  - Creating records
  - Reading records
  - Updating records
  - Deleting records

  } CRUD
- Reports – flexibility to change report formats (e.g. HTML, PDF)
- Enquiries – search & display records
- Auditing requirements

Web-based CPS

SIM UNIVERSITY

CURRICULUM SYSTEM - ADMINISTRATOR

Course:

- Home
- Course Register
- Create New Course
- Upload Synopsis
- List of Synopsis

Curriculum:

- Assign Course to Programme
- Edit Course-Programme Details
- Retire / Replace Course

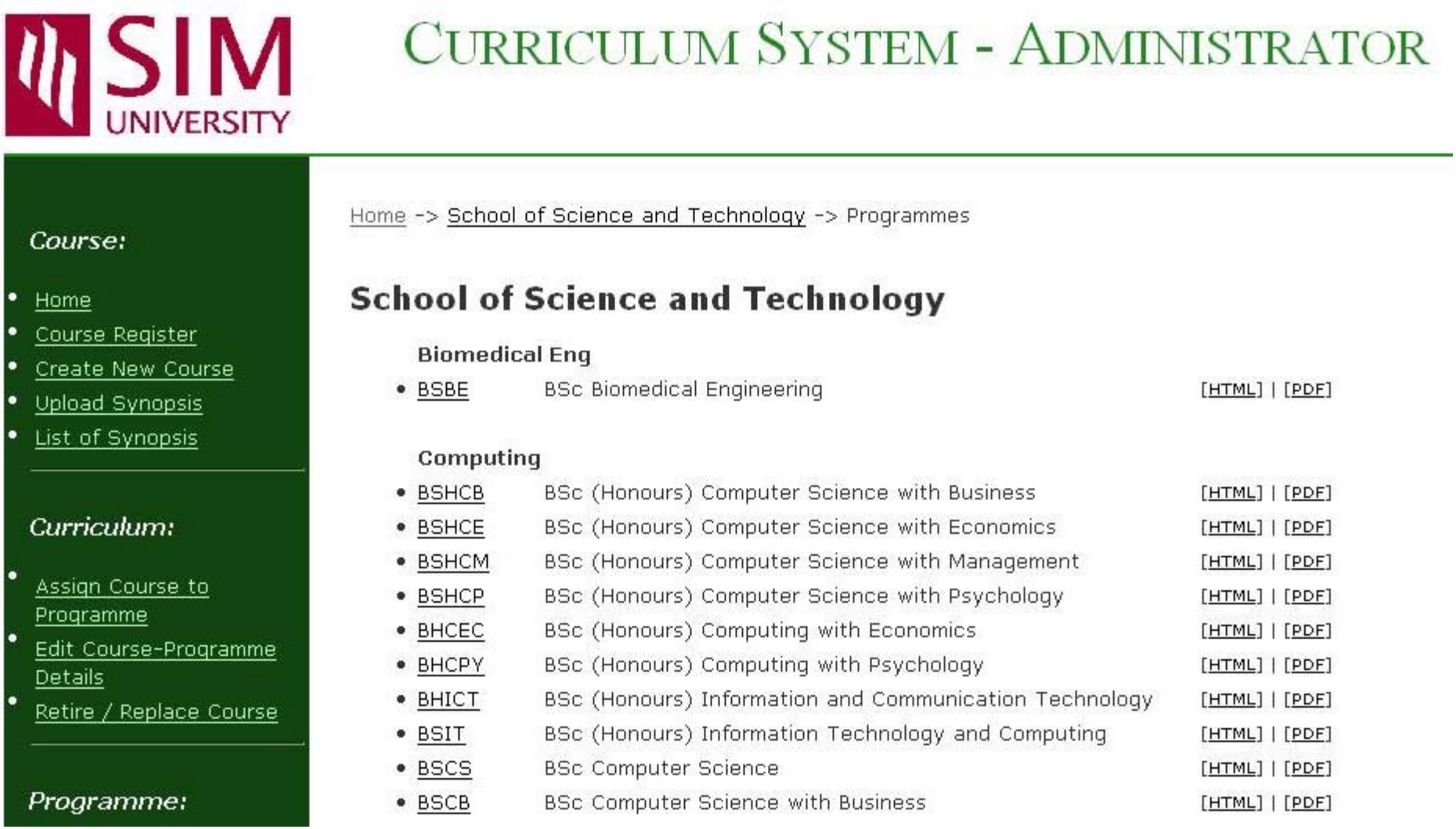
Please Log In

Username:

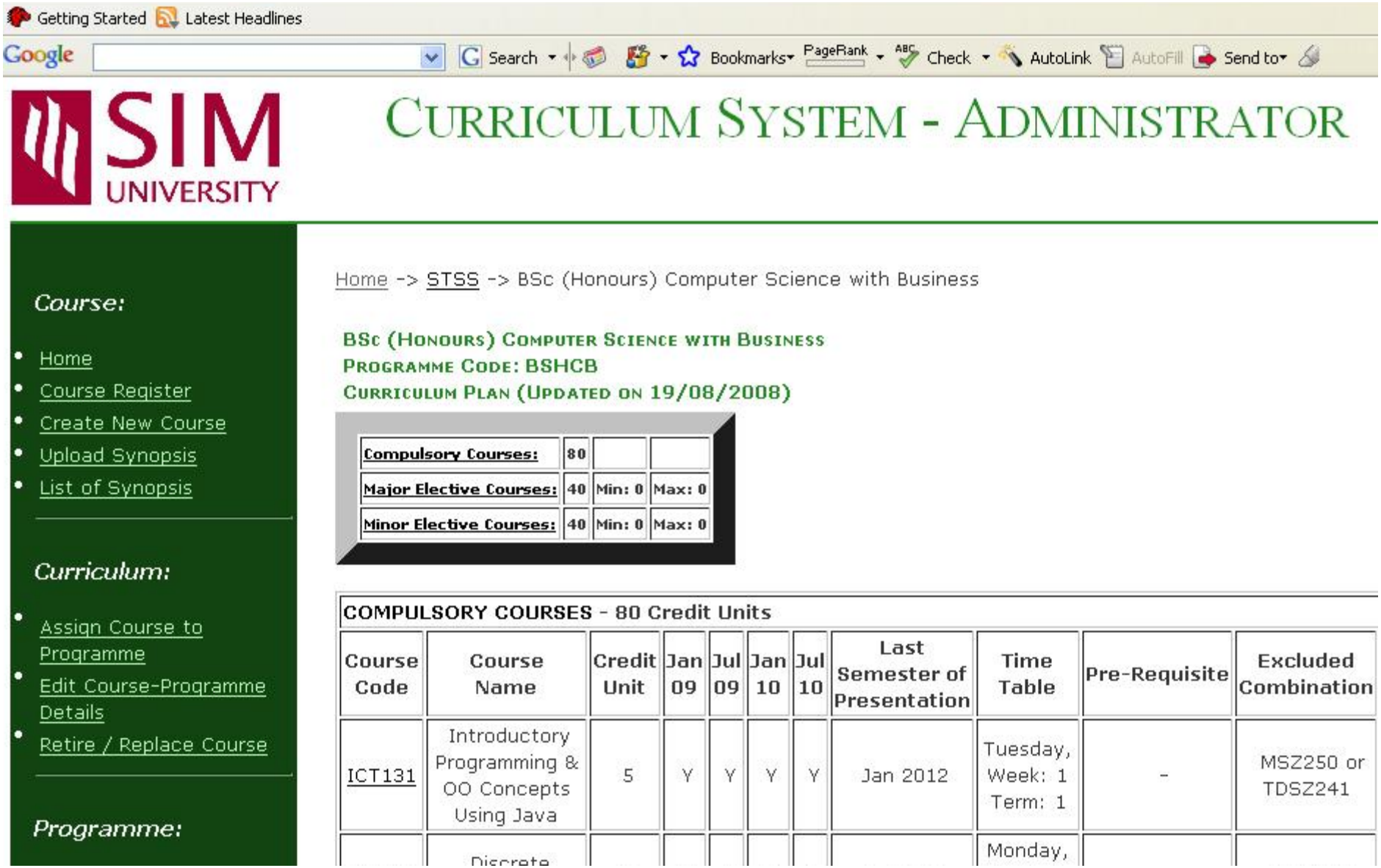
Password:

Login

Curriculum Plan System (CPS)



Curriculum Plans

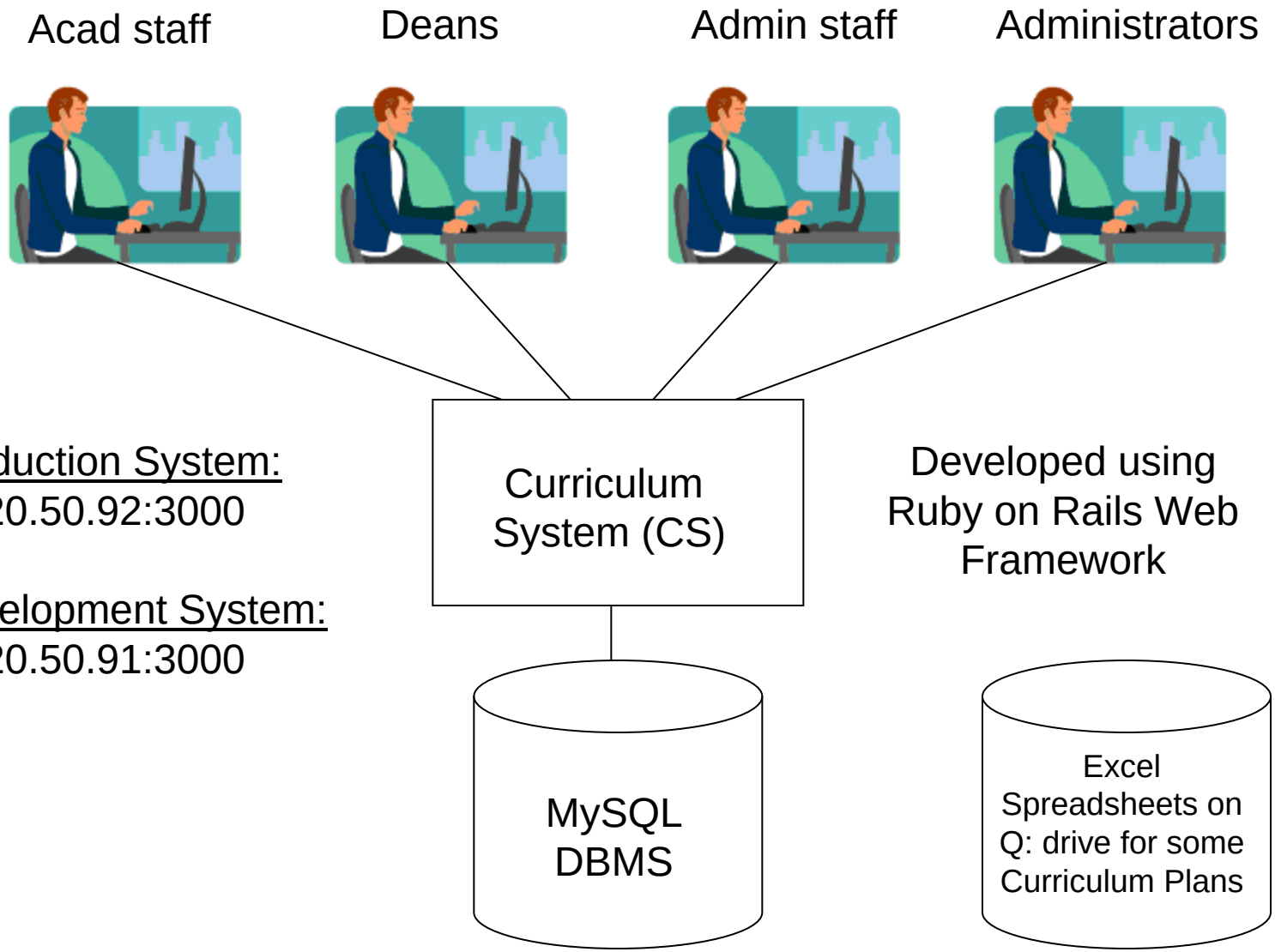


End of Phase 1

- Web-based Curriculum Plan System
- Converted more than 90% of Excel spreadsheets to the Web- and database-based system
- Organized 8 presentations with end-users.
- Get feedback from end-users and keep improving prototype.
- Got the buy-in from Senior Management
- Trained two students to do the programming and data conversion
- Started in Oct 07 and completed the Phase 1 by end January 08.

Now for the Phase 2 work

Current Solution



Production System:
10.20.50.92:3000

Development System:
10.20.50.91:3000

Developed using Ruby on Rails Web Framework

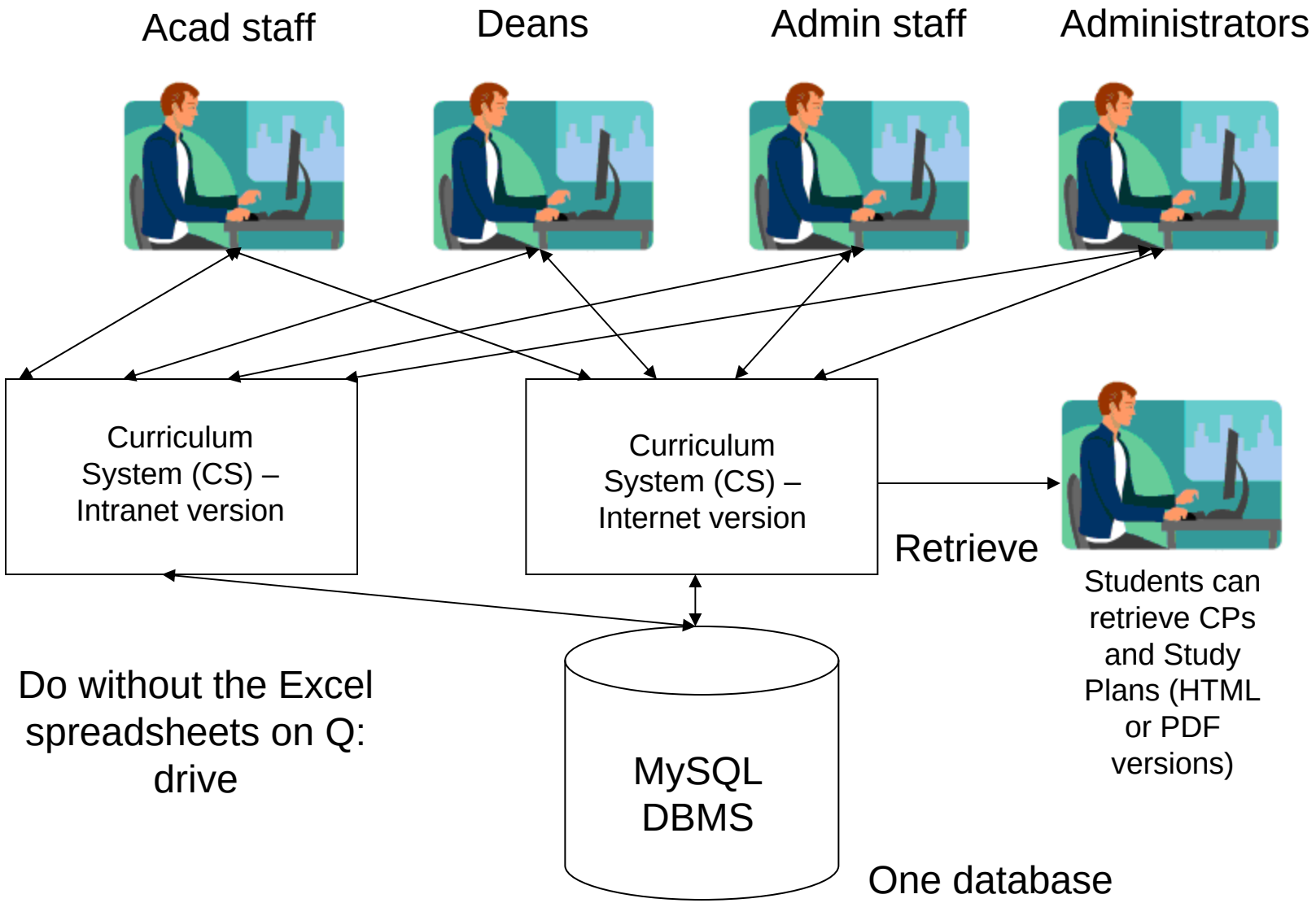
Shortcomings in Version 1 - 1

- Not all curriculum plans are captured in the WBCS
- Some still exist as Excel spreadsheets in Q: drive
- CPs not available to students
- CP not available for General Studies Programme (GSP)
- CPs for programmes with different combinations of electives not provided (e.g. choose 2 out of 3 electives)
- Study plan not provided
- Entries for textbooks are not enough
- Different combinations of assessment strategies

Shortcomings in Version 1 - 2

- Courses were not sorted by course type and level
- Some confusion between course pre-requisites and programme pre-requisites

Solution for Version 2



New Features - 1

- List of retired/replaced courses in respective programmes
- Max/Min for Majors and Minors
- Programmes with special combinations (e.g. BACS – Sociology, English, Communication Studies)
- CPs, course synopses & study plans available to students in HTML or PDF formats – on the Internet
- Maximum of 5 textbook entries per course
- Courses are now sorted in all programmes
- Programme pre-requisites (different from course pre-requisites) can now be specified.

New Features - 2

- CP for GSP (General Studies Programme) is now available
- Can upload study plans (in Word, PDF or text formats)
- Can choose UCore or External for timetable
- Can allow for different presentation patterns (e.g. Every Jan, every Jul, every 2 years or Others)
- CSV (Comma-Separated Values) files for courses by programmes
- Phase 2 – from July 08 to end August 08.


http://10.20.50.92:3000/admin/new
Google
Edit View Favorites Tools Help
Curriculum System - Administrator
Page Tools
SIM UNIVERSITY
CURRICULUM SYSTEM - ADMINISTRATOR
Course:
Home
Course Register
Create New Course
Upload Synopsis
List of Synopsis
Curriculum:
Assign Course to Programme
Edit Course-Programme Details
Retire / Replace Course
Programme:
New Programme
Browse Curriculum Plan by School
Home -> New Course
Create New Course
Course Details:
* denotes compulsory fields
* Your lab days may differ from your presentation days
*Course Code:
*Course Name:
*Credit Unit: 2
*Discipline: Accounting
*Level: 1
*Master Dev: UNISIM
**Lab: Non-Lab
*Retired? No
*GSP: Yes
Assessment Details:
Note: Total weightage MUST be equivalent to 100%
Continuous Assessment Component
*Weightage (%)
Internet
100%

Lessons Learned

- There is no perfect system.
- Choose a software framework which you are most familiar with.
- Check with end-users as often as you can.
- Ruby on Rails can be picked up quickly by programmers and those skilled in IT.
- Seek solutions and other help from forums e.g. http://railsforum.net
- Look for plugins, e.g. for generating PDF files on the fly.

Project Possibility

- Offering a short online course on developing rapid web-based application systems using the Ruby on Rails Framework

End of Presentation

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