IT1050- Object Oriented Concepts

Assignment-02 – Part -02

Scenario:

Kiyosaki Institute is a leading higher education institute with more than 5000 students enrolled under several degree programs. Due to rapid expansion of the institute, management team of Kiyosaki Institute has decided to develop a system to handle administrative tasks in conducting official exams. As the initial step to develop the system, management has assigned a team to identify requirements. Given below are different aspects of conducting exams in the institute identified by this team.

The institute conducts two types of official exams in a semester. Midterm exams are conducted at the middle of the semester and final exams are conducted at the end of the semester. Each exam should fall under one of these two types. Each exam has an exam id, duration, start time, end time and location. A midterm exam only contains multiple choice questions. For each midterm exam, system must store the number of questions. For each final exam, system must store the number of minutes given as the reading time.

Each exam conducted in the institute will have an exam paper. An exam paper has a paper id, number pages, moderated date, submitted date and printing date. Each paper given by the institute are moderated by moderators to ensure the quality. Typically, a paper will be moderated by an internal moderator and an external moderator. Internal moderators are assigned from the institute. The system must store employee id, name, email, contact number and department of the internal moderators. External moderators are assigned from outside the institute. External moderators are mostly professors from external higher education institutes or universities. External moderators are paid for moderating papers. The system must store name, email, contact number, address and payment rate of the external moderators.

The institute currently deliver more than 50 modules in a semester. One or more exam papers will be given by each of these modules. For each exam paper, exam management system must store details of the module such as module code, module name, year, specialization and number of

students enrolled. A module is delivered by one or more lecturers and a lecture can deliver one more modules. The system must store employee id, name, email, contact number and department of all lecturers in a module. An exam paper is submitted by a lecturer of the module. If needed, the system should be able to get the contact number of the lecturer who has submitted an exam paper.

Students at the institute are enrolled in modules. The system must store student id, name, year of study, intake and specialization of each student in the institute. At the beginning of each year all students are allocated for groups based on the modules they are enrolled. There can be up to 120 students in a group. Each group of students will enroll in 4 to 6 modules. A module can have one or many student groups enrolled. The system must store group id, year and intake for each group. An exam will be conducted for a group. A group will have 4 to 12 exams. An exam can be taken by one or more groups.

During the exam period, there will be an exam schedule created for each group. An exam schedule will have a collection of 4 to 6 exams. Once an exam is finalized, it will be added to an exam schedule. The system must store start date and end date of each exam schedule.

There must be 3 invigilators added for each exam. These invigilators are added only for the finalized exams. The system must store employee id, name, email, contact number, invigilation time and substitute of each invigilator. If an exam is cancelled, invigilators allocated for the exam must be released as well.

The institute must release results of each student who has taken an exam. Thus, an exam will have many results. All students who have taken the exam will have his or her own result. The system must store release date and status of each result. A student may request for a re-correction of a result. When a re-correction has been requested for a result, the system must notify a lecturer via sending an email.