

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES
Software Design and Architecture (SE220)
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Lab Session Tasks # 03

Q no.1 Identify the actors for the following system, draw the USE CASE diagram

Task no.1

Bahria Town Karachi is a privately owned gated suburb under construction near Karachi, Pakistan. There are many schools in Bahria Town. Each school has a distinct name e.g. Bright Future School, Public Foundation, Mehran School. The schools of **BAHRIA TOWN** are committed to provide quality education and developmental activities to groom students into responsible, informed and creative individuals capable of achieving their true potential.

Their aim is to expand operations to all major cities in Pakistan to offer high quality education at a national level.

They offer Play Group to Matric/O levels & Intermediate/ A levels. Bahria Town Schools also offers facilities and services like Students' Transportation, Food and Nutrition Lab, Robotics Lab, Swimming Pool, Sports Facilities, Skills Development Centre, World Class Laboratories and Libraries. The fee structure of all the schools is same. Bahria Town has given special concession to its employees who want to enroll their children in this school. For residents and other already 20% to 30% is on offer.

Each school handles its own student admission, test, examination and documentation. Each school is built to a standard design and has 20 classrooms and 5 common rooms. Every room (whether it be a classroom or a common room) has a room number and may be currently occupied or unoccupied.

Their admission system works on a website where a student can apply for the admission by login there, filling form, paying admission fees and submit documents. It's important to pass the test and meet eligibility criteria to get an admission. After passing test, every student is interviewed. It's not necessary that every student enrolls in the school.

The admission department adds admission, student and create fees bills.

The responsibilities of system manager are to manage subjects, manage students and manage entrance exam.

Task no.2

HEC degree attestation system

The Higher Education Commission (colloquially known as HEC) is a Government of Pakistan's statutory regulator which main functions are funding, overseeing, regulating and accrediting the higher education institutions in the country. The commission is responsible for formulating higher education policy and quality assurance to meet the international standards as well as providing accrediting academic degrees, development of new institutions and uplift of existing institutions in Pakistan

The commission's main programs are following:

Degree Attestation, Entry Test Council, Faculty development, Curriculum revision, Higher education infrastructure development, Indigenous scholarships, Foreign scholarships, Patent filing support, Conference travel grants, Increase industry and university research collaboration, Developing new technology parks, Laptop Scheme.

The commission also facilitated the development of higher educational system in the country with main purpose of upgrading the universities and degree awarding institutes in the country to be focal point of the high learning of education, research and development. Over several years, it plays an important and leading role towards building a knowledge based economy in Pakistan by giving out hundreds of doctoral scholarships for education abroad every year

The Higher Education Commission (HEC) provides an online platform for attestation of degree. For authentication CNIC/Passport is required, if credentials are incorrect user gets an error. After successfully log in instructions are provided to the user before proceeding the application like

The Following documents are mandatory for attestation of degrees:

1. Duly filled, printed and signed application form
2. Original degree along with original transcript (Degree(s) will not be attested without provision of original transcript(s))
3. Copy of CNIC or Passport (only in case of foreign national)
4. Attestation Fee as mentioned on application form
5. Photocopy of all above mentioned documents.

After understanding the instructions user hits proceed button, where he is directed to the forms for Personal details, Details of degree, Attestation details, Document uploads and verify details. If the application is left in between, the user gets notification for completing it from HEC

All the details are important to proceed the application.

After successfully applying, user gets an email of confirmation from HEC. HEC starts the attestation process by verifying all the data provides by the user. If the data is not correct then it stops the process and notify to the user otherwise attestation is done within 2 weeks and emailed to the user to collect the attested document.

Task no.3

LineTest System

Many businesses have overturned due to COVID-induced lockdowns. There are school closures and social distancing everywhere. Normality is questioned. Governments across countries have initiated universities and higher education systems to adapt to remote instruction to cover lectures, exams, evaluations, and result publications. This technology-driven measure to promote education with equity during lockdown might work for online learning and teaching, but “how could it support online examinations?”, is one of the top questions now. An online examination system during COVID could be a way out.

Online Examination System is a technology-driven way to simplify examination activities like defining exam patterns with question banks, defining exam timer, objective/ subjective question sections, conducting exams using the computer or mobile devices in a paperless manner.

Online Examinations System is a cost-effective, scalable way to convert traditional pen and paper-based exams to online and paperless mode. Candidates can appear for the exam using any desktop, laptop, or mobile device with a browser. Exam results can be generated instantly for the objective type of questions. It can simplify overall examination management and result in generation activity.

Due to Covid an Online Exam System is designed called LineTest that provides facility to the students and teachers to give and take an online exam.

To appear in the exam, it's important for student to register himself first by filling an online form and receive an email with login credentials. After successfully login, student can select the subjects interested to appear in and pay the fees for it.

The activities a student can perform through the exam are answering the questions, submit the exam paper and view the exam result.

On the other hand teacher logs into the system using credentials received after filling online form, teacher sets the question paper for students by adding questions, update questions, view questions and deletes questions. Teacher declares the result on the system and can also use the email option to send the result to the student but not necessarily.

Eventually, with online examinations becoming the new normal, **protecting the integrity of exam and exam data** are becoming key areas of concern too. Experts and veterans are looking for software that comes with **security features** so they could evaluate student performance confidently and provide timely remediation measures for improvement, now and beyond COVID.

Task no. 4

CloseFriends Application

A mobile application called CloseFriends is designed to find new friends in the same locality using GPS. It helps users to discover people nearby them and make them friends. CloseFriends lets you select your location first and then gives you a broad range of categories to find a group near you with similar interests living nearby you. It works across thousands of cities. Its aim is to help bring together groups of people that have common interests. By signing up, you can immediately check out what your local area has to offer. Whether it's simply a group full of people of a similar age, or a keen bunch of tech or fitness fans, there should be something for you.

It works with iPhones, Androids, Blackberrys and even feature phones. To use this application, it's required to login first, it provides you an option to connect with your facebook, twitter or instagram account or use credentials by filling the form. After login it gets your location and suggests you friends near to you. The application provides the functionalities Check News feed, Manage Profile, Manage friends where user can, Add new friends, See location of friends, See Number of friends, Delete friends, View map with friends markers. It also provides the options of Share with friends and Logout

