



**Problem Definitions for July 2022 & January 2023**

## Important Notes

1. **Viva-voce of this project is compulsory.**
2. **Please follow MCS-044 guidelines for process of solving project problem and for the presentation format for submission of mini project report.**
3. **Please do not attempt the problems given in the course material of MCS-044, Block -1 or any other old problems. You must attempt one of the problems given in this section, if you submit mini project during July, 2022 or January, 2023 session.**

---

## INTRODUCTION

---

The mini project is designed to help you develop practical ability and knowledge about practical tools/techniques in order to solve real life problems related to the industry, academic institutions and computer science research. The course Mini Project is one that involves practical work for understanding and solving problems in the field of computing. In this booklet the list of the problem definitions for the July, 2022 and January, 2023 sessions are given. Every year, the list of problem definitions will change. **Please do not attempt the problems given in the booklet (MCS-044, Block-1) received by you along with your course material.**

---

## PROBLEM DEFINITIONS

---

We have divided different projects into four broad areas / categories of computer science as given below, so that you can select any one of these categories for your Mini project.

- Application development
- Networking project
- System software
- Website development.

An initial list of project definition will be given below in the following sections. However, student can elaborate the project definitions after discussing it with the project counsellor. Students should **select one project from the given categories only** as per their interest, experience and knowledge in that area. Students should evaluate themselves and then should choose the project. Students may propose modifications/suggestions in the given project specification and finalize it in consultation with the MCS-044 counsellor.

---

## APPLICATION DEVELOPMENT PROJECTS

---

Here we focus on investigating ideas in application development through different projects. A set of possible project name and their details will be presented; however, students are encouraged to be creative and develop their own ideas in the given project descriptions.

**1) Project Name: Stock Management System of a Medical Store**

**Description**

A retail medical store purchases medicines from various medical suppliers and sells these medicines to different retail customers. The system maintains a list of medicines, their price, batch number, date of expiry, the supplier of that medicine, quantity of medicine available, the stack number where medicine has been placed in the store etc. The medical store also ensures that a minimum balance of medicine is kept in the store. This minimum level is computed using the sales of the last week. The medicines, which may expire in the next month, are returned to the supplier and alternative fresh stock is obtained. This system is also used to find the current orders, pending bills of suppliers, pending payments from the customers etc. Analyse the system requirements, design and implement such a system. Use suitable data structure/database and programming language to implement this system. You may add more functionality into the system.

**2) Project Name: Taxi Booking and Pickup Service maintenance system**

**Description**

A taxi booking company operates in a specific area. It maintains a list of fixed clients, who can book taxi in advance. The clients registered with the company are given fixed rate per kilometer for taxi booking. A client is given a rating based on use of services by the company and rates are changed on this basis. The fleet of the taxis, their year of purchase, maintenance requirements, drivers allotted etc. are also maintained by the company. In addition, the company keeps track of the list of booking and taxi allotment to those bookings. The company not only schedules these bookings, but keeps track in case of any delay etc. Create a system, which performs the tasks as above. Analyse the system requirements and design the system. Use suitable data structure/database to implement this system. You may add more functionality into the system.

---

## **NETWORKING PROJECTS**

---

We will focus on simulating some of the basic protocols on 8-10 nodes to make networking project. Two of the possible project topics are presented here, however, students are encouraged to be creative and develop their own ideas in the given project domains.

**1) Project Name: Simulation of Shared file system on a Peer-to-Peer Networks**

**Description**

You may demonstrate the use of a shared file system that may be used in a peer-to-peer networks. For this implementation, you may create a distributed file system, which may be replicated over the file storage. The file system may consist of a centralized directory. You must also simulate a search feature that may locate the file, may be using the centralized directory. To access the searched file, you must decide which replica of the file should be used. The decision may be based on the

locations of the file and where the file is needed. You may use object-oriented programming language like Java to simulate and demonstrate the system.

**2) Project Name: Simulation of integrated learning environment**

**Description**

Design and develop a integrated learning environment, where several workstations, say 5, are managed by a single server computer. The server computer should have complete control of every attached workstation. You need not design this software from scratch. You may use a star topology. Assume that a total of 10 computers are connected in the laboratory using Star topology. The server is controlled by a teacher and s/he can see the activity of every attached workstation and can discuss with each student at workstation using web camera and headphone. Thus, you need to manage web camera and voice services. You may use Linux or Windows server to manage these workstations, groups, ownership, permissions, etc.

---

## **SYSTEM SOFTWARE DEVELOPMENT PROJECTS**

---

Here we will focus on implementing some of the basic system software application. Two of the possible projects and their details are given here, however you are encouraged to be creative and develop your own ideas in the given project domains.

**1) Project Name: Access Right Management for Directories**

**Description**

Design and implement a software utility to create UNIX like access rights for the folders that are available on a disk. Each folder should be accessible to three types of users – Owner, Friends and Others. However, each of these types of user may have different access rights for Read, Write and Execute on the folder and all the files in the folder. The owner will have all the access rights, whereas Friends will have Read and Execute access rights. Others will have only Read access. The Write and Execute access must be maintained through a password validation of the users. Each user may be given different password for such verification.

**2) Project Name: A simple editor**

**Description**

For this Project, you may create a simple GUI editor. The editor should have features for creating, editing and viewing a file. The files should have a defined extension. It should also have feature for finding and replacing text in the file. The editor should support Hindi fonts (if possible). You may use an object-oriented programming language for implementing this project.

---

## WEB DEVELOPMENT PROJECTS

---

Here, we will focus on investigating new ideas in application development through different projects. A set of possible project name and their details will be presented; however, students are encouraged to be creative and develop their own ideas in the given project descriptions.

1) **Project Name: Online Out-Patient Management System**

**Description**

A Hospital Manages the details of its doctors and out-patients using an online system. The information about various doctors, like qualifications, years of experience, specialty and availability at the hospital etc., is made available online. An out-patient can consult a doctor with prior appointment only. For each Doctor, as per his/her available timing, a timeslot of 15 minutes is allotted to a patient. A patient needs to upload any of his/her previous consultation document, test reports, and present symptoms. The patient must provide details of any present medication taken by him/her. A patient must pay the fee of the doctor in order to confirm an appointment. Once the doctor examines the patient, s/he uploads an online prescription. In addition, if a patient is required to visit the doctor again, then next date of consultation is informed to the patient. Doctor may also recommend few medical tests and procedures. You must study the problem domain and analyse the requirements for the system in details. Design and develop this as an online system.

2) **Project Name: Online Project Synopsis System**

**Description**

An Open University has a Project course as part of their curriculum. In order to submit the project, a student is required to submit a synopsis to its regional center. The synopsis includes, the name of project, list of tools to be used, guide's name and qualifications, experience details of the guide. In addition, student must submit the analysis and design of the project as part of the synopsis. The synopses are evaluated by a group of approved evaluators. The system administrator allocates 20 synopses to an evaluator. An evaluator should submit the online approval or disapproval of project along with comments for the student. The evaluator comments and approval status are communicated to the students. The students, whose synopsis is not approved, can submit the synopsis again. Study various requirements for such a system. Analyse the requirements in detail; and design and develop the online system.

---

## GUIDELINES

---

The MCS-044 block covers the majority of the guidelines regarding the formulation of the project proposal, formulation of the project report and the format to be followed for the project report. However, the following are the detailed guidelines with respect to the counseling sessions and evaluation scheme.

### Practical Counseling sessions

Students can discuss their topic with the counsellors at study centres and the counsellors will give suggestions on project specification at the study centre during the practical sessions. There are total 10 practical sessions, as given below:

Name of the Topic	No. of Practical Sessions (3 hrs each)
Project specification	1
Coding / Implementation	5
Testing	2
Documentation	2

### Role of the Counsellor

The MCS-044 Mini-project counsellor is the person who motivates and helps students during the development of the project. The counsellor should take responsibility for guiding and approving different project processes, including Analysis, Design, Coding, Testing, and also the editing of project reports. Moreover, the main responsibilities of a counsellor are:

- Dedicating adequate time to the student for providing effective supervision and encouragement,
- Making sure that the student chooses a manageable project topic,
- Providing critical comments on the student's work and progress,
- Ensuring the student has access to necessary data,
- Encouraging the student to proceed in the intended direction and to agreed time limits, and
- Making sure that the project is the student's own work.

### PROJECT SUBMISSION

#### Project Proposal

Project proposal should be presented to, reviewed by and agreed upon in consultation with the project counsellor to provide constructive feedback on the proposal and planned programme of the project work. **No need of any formal approval to be taken on any proforma.**

#### Project Report

The project report will contribute to the assessment and your marks. The format of this report will follow the format, guidelines and suggestions given in the block, but details should also be discussed with your counsellor. The final reports of students doing **the project in a group should not be identical. Each student should emphasise on his/her role and responsibilities in the project work.**

### **Submission of the Project Report**

One copy of the original project report is to be submitted to the Study Centre concerned. A photocopy of the same project report must be retained by the student and should carry with him/her at the time of the viva voce.

---

## **EVALUATION SCHEME**

---

MCS-044 course has three main evaluation components consisting of assignment (25 marks), project report (50 marks) and viva-voce (25marks). **A student is required to score 40% marks in each of these components separately for successful completion of the course.**

The project will be assessed by a written report and a combined presentation and viva voce (viva voce). To help the students we have given some guidelines about evaluation and assessment in the next section. If, the examiner finds that the project is lacking in any key areas then, the student will be asked to re-submit the project by selecting a new topic in the next session.

### **Resubmission of the project by the failed students**

If the student fails in project report evaluation or viva-voce or in both, the students need to redo the entire process by selecting a new problem from the list of problems which will be updated every year.

### **Assignment/Continuous Evaluation**

25% of total marks are allotted to assignment/continuous evaluation. The assignment questions are given in the MCA 4<sup>th</sup> semester assignment booklet.

If the student failed only in assignment component and successfully passed in project report evaluation and viva-voce, s/he needs to submit the fresh assignment of the current year, as is done in the normal courses.

### **Final Evaluation**

The Term End Practical Examination of Mini Project will be conducted at the study centre concerned. 75% of total marks are evaluated in the final evaluation. Out of these 75 marks, 50 marks are allotted for the project report evaluation and 25 marks are allotted for viva voce.