

GUIDELINES

for

Mini Project

(BT0079)

of the course

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Third Semester

Directorate of Distance Education

SIKKIM MANIPAL UNIVERSITY

OF HEALTH, MEDICAL & TECHNOLOGICAL SCIENCES (SMU)

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1. Objectives:

The mini project is designed to help students 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. Students will select individually Commercial or Technical Project based on Application Development Technologies learnt in previous semesters. Each student will have to prepare proper documentation consisting of Software Requirements Specification (SRS), Modeling Techniques, Development Strategies, Implementation and Testing Strategies. Student may use any Design Methodologies such as SSAD, OOAD and UML, etc. The project work will be presented by students using Power Point Presentation Tool to the panel of Examiners.

2. Hardware Requirements:

- PIV Computer
- 512 MB RAM
- 40GB Hard Disk

3. Software Requirements:

RDBMS / Back end Tools:

MySQL

Languages:

C, Java

Internet Technologies:

DHTML, Java Script, VB Script, Perl & CGI Script, Java, Active X, RMI, CORBA, Swing, JSP, ASP, XML, EJB, Java Beans, Servlets

Operating Systems:

Windows 2000 / ME / NT / XP / Vista, Unix, Linux

4. Broad Area of Applications:

- Financial
- Insurance

- Manufacturing
- Multimedia
- Computer Graphics
- Instructional Design
- Database Management Systems
- Internet
- Intranet
- Computer Networking Communication
- E-Commerce
- ERP
- TCP-IP Programming
- Routing Protocols Programming
- Socket Programming

5. Problem Definitions – Some Examples

A set of possible project names and their details are present here. However, the students are encouraged to be creative and develop projects in similar areas.

Application Development Projects:

Project Name: Personal News Manager

Description: A large amount of day-to-day news reports are available on the web and many of them are updated continuously like CNN, BBC etc. But we realize that following such news sites is time work. You should develop a system that understands user requirements and regularly updates the news relevant to such needs. For example: User is a teacher of computer science and s/he likes to see any news related to the computer science research. So in the Personal News Manager users have to list some favourite news sites and, it will automatically search the web-sites as backend process and if there is any news conforming to the given keywords, it will give the user a message about it.

b. Project Name: Identical Projects Finder

Description: Develop software to identify identical project reports. The software compares a project report with other project reports to search for similarities between different reports. If any two or more reports are more than 10% similar to each other, then they are marked as 'suspected' and will be evaluated manually. The software will generate a table to show the list of similar reports along with the percentage of similarity of each.

c. Project Name: Personal Assistant

Description: Design and develop software that can provide facility to users to plan the timetable and schedule for a day, week and month. The timetable should remind the user about the task, with, a message and some musical tones. Give the facility to the user to set different priority levels. According to the priority levels different reminder messages and tones should appear.

d. Project Name: My Accountant

Description: Develop software that helps the user (either the service person or business person) to compute his/her income tax or sales tax returns. It should calculate returns for the user to review the return. Implement all necessary income tax rules, relaxations, benefits etc.

Networking Projects:

a. Project Name: Group Communication

Description: Develop group communication client and server software where multiple users can communicate through text messages (similar to yahoo messenger). It should provide facility to broadcast and multicast the message. The server program will be installed on one machine and clients can be installed on different machines in a local area network.

Chat server program listens for incoming calls from clients. Client running in any PC can connect to the server if IP address of the server is known. It listens for messages from all the connected clients. It broadcast the message from clients to all the clients connected to the server. You can also type-in messages in the server, which will be broadcast to all the clients. Chat client program sends messages to the server as well as all the connected clients. It views the messages from all the clients and the server. When some clients want to send some message to other clients it should give the machine name, user name, IP address and other relevant information about the senders client so that the receiver client will give authentic permission to the sender client.

b. Project Name: Implementing OSPF Algorithm

Description: Routing protocols are used to ensure packets are routed correctly from source to destination in data networks and ideally should be optimal, simple, stable and robust. Open Shortest Path First (OSPF) is a widely deployed routing protocol in Internet protocol networks. Design and develop a program for OSPF routing protocol and demonstrate how data packets are routed through the OSPF algorithm.

c. Project Name: Multimedia Search Engine

Description: Multimedia search engine should support efficient storage, retrieval and management of collection of images, audio and video files. A user will search images, audio and video files while providing some text not details of the desired file. Each image, audio and video file in the database will have its description. List all the images, audio and video files according to description asked by user. For large size images search engine program should convert the original image into its temporary small image version, which will use less bandwidth. Clicking on small versions of the image, it will open the original image.

d. Project Name: Router Simulation

Description: A router is a device that forwards data packets along networks. A router is connected to at least two networks, namely two LANs or WANs or a LAN and its ISP network. Routers are located at gateways, the place where two or more networks connect. Routers use headers and forwarding tables to determine the best path for forwarding the packets, and they use protocols such as ICMP to communicate with each other and configure the best route between any two hosts. Design and develop a software simulator for a router with n inputs and n outputs to analyze router performance under bursty traffic and compare it to that under non-bursty traffic.

System Software Development Projects:

a. Project Name: Image Filter

Description: Texture synthesis is a technique for filling in holes or tears in images when missing parts of the image are not known. One approach to doing this is to use a technique not unlike the 'rubber stamp', tool in Photoshop. This involves using statistical inferences on texture around the hole and then filling the hole in from the outside using pieces (by implication statistics of pieces) of the image, which best around the current tip of the hole.

b. Project Name: Collaborative Document Editor

Description: During meetings people often create shared textual documents, or discuss and work on documents, which have been prepared before the meeting. A basic characteristic of a shared meeting document is that it often serves as a source of information for participants, either during or after a meeting. For instance, a shared document such as the minutes of a meeting could be used to identify the contributions of different people, to find out about proposed deadlines, pending tasks, and so on. The objective of this project is to develop a Java-based collaborative document editor which allows computer supported collaborative meeting participants to structure their shared documents by making up various parts of the documents in a way that facilitates post-meeting information retrieval.

c. Project Name: Split Download

Description: Develop an application that will improve the downloading process, by splitting big files into different parts, and download each part of the file parallel and then combine them properly. It should maintain transparency to users.

d. Project Name: Browser History Viewer

Description: Web proxy allows a user's web browsing activity to be logged to a file or database. Analysis and access to these logs of web site are very limited. In this project, Browser History Viewer, you will develop a system that allows users to browse these web histories in a number of different ways. Users should be able to browse their histories using thumbnails of the pages they visited. Additional displays would always the web sites they have accessed to produce a graphical tree of web use. Alternative displays could use textual analysis to group similar pages together in users' histories.

Web Development Projects:

a. Project Name: Online Reminder

Description: Design a website, which will send reminder to the user on his/her e-mail, on specific dates. It will manage different users and each user will login securely, each user can plan, schedule the dates in the calendar and set reminder for example birthdays, anniversaries, important days of the whole year, month. On that specific date, the program will send a reminder to the users e-mail account and inform the importance of that date.

b. Project Name: Online Editor

Description: Create a website for an online editor; the user should be able to type the message or be able to send any kind of text document. The program on the website should check the spelling and grammar mistakes. If the spelling is wrong, on right click of mouse it should give the probable correct spelling and the user can correct it easily. Calculate the 'log index' for the typed paragraph or file data sent by the user.

c. Project Name: Web Based Course Registration

Description: Develop a Web based course registration program; students can register for different available courses. For each course he/she will fill an online form, which will contain details of DD/Cheque no etc. Details of the form should be forwarded to the administration. After checking the eligibility criteria, fee details etc. the administration will provide the user name, enrolment no., password to the student and the student can join the course. If any information is missing, then the software will inform the student on their e-mail regarding the problem. Security at every stage should be maintained properly.

d. Project Name: Web Based Library

Description: Implement and design a Web based library; which should allow the user to issue books and other on-line material, issue the user id and password to the user for the specific duration of an academic year. Authenticate the user. Implement all library related issues in the software.

6. Guidelines for Project Report Preparation

The Project Report should contain the following headings:

- a. Title of the Project
- b. Introduction and Objectives of the Project
- c. Project Category (Application/Networking/System Software/Web Based)
- d. Tools / Platform, Hardware and Software Requirement Specifications
- e. Problem Definition, Requirement Specifications (Detailed Functional Requirements and Technical Specifications), Project Planning and Scheduling (Gantt chart/PERT chart)
- f. Scope of the Project
- g. Analysis (DFDs, ER diagrams/Class diagrams etc. as per the project requirements)
- h. A complete structure which includes:
 - i. Number of modules and the description to provide an estimation of the student's effort on the project.
 - ii. Data structures as per the project requirements for all the modules.
 - iii. Process Logic of each module.
 - iv. Implementation Methodology
 - v. List of reports that are likely to be generated
- i. Overall network architecture (if required for your project)
- j. Implementation of security mechanisms at various levels
- k. Future scope and further enhancement of the project
- l. Bibliography

7. Evaluation

Methodology of Conduct of Project

The course titled “Mini Project” bearing the subject code BT0079 has 4 credits weight and the project has to be completed for duration of 120 Hours.

TABLE 1 - COMPONENTS OF PROJECT EXAMINATION					
PAPER	PE 1	PE 2	PE 3	PE 4	PE 5
BT0079	Synopsis	Participation in Project Work and Accomplishment	Project Report	Presentation	Viva

TABLE 2 - PROJECT MARKS DISTRIBUTION													
PAPER	MAXIMUM MARKS			PE 1		PE 2		PE 3		PE 4		PE 5	
	INT	EXT	PE MAX	INT	EXT	INT	EXT	INT	EXT	INT	EXT	INT	EXT
BT0079	60	140	200	30	N A	30	NA	NA	80	NA	20	NA	40

TABLE 3 - PROJECT PASSING REQUIREMENTS						
PAPER	PROJECT EXAM		COMPREHENSIVE EXAM		TOTAL MARKS A + B	PASS MARKS X + Y > 40 %
	MAXIMUM MARKS - A	PASSING MARKS - X	MAXIMUM MARKS - B	PASSING MARKS - Y		
BT0079	200	80	N A	N A	200	80