CS 505 Advanced Programming, Database Management and Operating System Laboratory (0-0-6: 3)

Advanced Programming Exercises: (Phython, j2ME, Android)

J2ME:
1. Designing a MIDlet to demonstrate use of command button and text box.
2. Designing a MIDlet to demonstrate the use of List, Alert, Gauge and Ticker classes
3. Designing a MIDlet with an interface which allows user to select an item using radio button and to select multiple items using check boxes.
4. Designing a MIDlet to play a multimedia file in j2me program (Audio/Video) using MMAPI.
5. Designing a MIDlet with an interface to read and write records in record store.

Android:
1. Writing a program to send SMS using Android.
2. Writing an animation application in Android.
3. Writing an application to demonstrate the use of Bluetooth in Android.
4. Writing an application to demonstrate the use of camera.

Phython:
1. Writing programs for familiarity with basic syntax of Python- comments, variable usage, conditional statements if-elif, operators etc.
2. List processing using append, insert, extend, in, sort, reverse etc.
3. Writing functions, e.g. functions for prime number generation etc.
4. Working with files.
5. Internet access in Python

Advanced Operating System Exercises:
1. Implementations of the scheduling algorithms using VxWorks real time operating system.
2. Implementations of the page replacement algorithms.
3. Implementation of classical problems such as Dining philosophers, Readers-writers problem, Producer-Consumer problem using semaphore and monitors.
4. Study the design of Android operating system.
5. Study the design issues of any distributed operating system.

Advanced Database Management Exercises:
1. Design of a database for a real life problem involving 5 to 6 entity types.
   a. Develop ER model
   b. Design a Relational database and implement in MySQL and PostgresSQL
   c. Write SQL queries involving multiple tables and requiring wide range of SQL features.
   d. Write queries using C & ODBC and Java & JDBC.
2. Basic PHP programming, Session handling in PHP, using MySQL from PHP.

References:

1. Marl Lutz, Programming Python, O'Reilly
2. James Keogh, J2Me: The Complete Reference, TMH
3. Marko Gargenta, Learning Android, O'Reilly
4. Singhal, Advanced Concepts in Operating Systems, TMH
5. Jeremy D Zawodny and Derek J Balling, High Performance MySQL: Optimization, BackUps, Replication and Load Balancing; O'Reilly.
6. Avi Silberchatz, Henry F Korth, S. Sudarshan; Database System Concepts, McGraw Hill