Practical:

SUBJECT NAME: Object Oriented Programming with Java Lab Credit: 2
SUBJECT CODE: BCAC592

The practical classes should comprehensively cover the theoretical syllabus, including the implementation of a small-scale project to enhance conceptual understanding and enable students to learn how to apply their knowledge to solve real-world problems

List of Sample Questions

- A library wants to automate book issuing and returning processes. The system should track available books and issued books. Create classes `Book`, `Library`, and `Member`. Implement methods to issue a book to a member, return a book, and display the list of available books.
- A company requires a payroll system to calculate employee salaries based on hours worked and hourly rate. Develop an `Employee` class with attributes like `name`, `id`, `hoursWorked`, and `hourlyRate`. Implement methods to calculate the salary and generate a payroll report for all employees.
- A bank wants to manage customer accounts and transactions, including deposits, withdrawals, and balance inquiries. Create classes Account, Customer, and Transaction. Implement methods to perform deposits, withdrawals, and display account balance. Handle exceptions for insufficient balance during withdrawals.
- A rental service needs to manage its fleet of vehicles, including cars, bikes, and trucks, and keep track of their availability. Develop a hierarchy of classes starting with a base class Vehicle and derived classes Car, Bike, and Truck. Implement methods to check availability, rent a vehicle, and return a vehicle.
- A warehouse needs a system to track inventory levels, including adding new items, updating stock, and generating reports. Develop classes Item, Inventory, and Warehouse. Implement methods to add items to inventory, update stock levels, and generate inventory reports.
- A hotel requires a booking system to manage room reservations, including checking room availability and booking rooms. Design classes Room, Hotel, and Reservation. Implement functionalities to check room availability, book a room, and display booking details.

SUGGESTED READING:

- **Schildt, H. (2018).** *Java: The Complete Reference* (11th ed.). McGraw Hill Education.

- **Horstmann, C. S., & Cornell, G. (2019).** *Core Java Volume I – Fundamentals* (11th ed.). Pearson Education.
- **Balagurusamy, E. (2020).** *Object-Oriented Programming with Java* (7th ed.). McGraw Hill Education.
- **Sierra, K., & Bates, B. (2005).** *Head First Java* (2nd ed.). O'Reilly Media.
- **Deitel, P., & Deitel, H. (2018).** *Java: How to Program* (11th ed.). Pearson Education.
- **Liang, Y. D. (2018).** *Introduction to Java Programming and Data Structures* (11th ed.). Pearson Education.
- **Halterman, R. L. (2005).** *Object-Oriented Programming in Java.* WCB/McGraw Hill.