Shri Ramdeobaba College of Engineering and Management, Nagpur
Department of Computer Science and Engineering

Programme	**B. E. (Electronics and Communication Engineering)**	Year	**2021-22**
Semester	**VI**	Shift	**I/II**
Course Name	**Object Oriented Data Structure Lab**	Code	**CSP364**

List of Experiments

<table>
<tr><th>Sr. No.</th><th>Aim / Problem Statement</th><th>Mapped COs</th><th>Remarks</th></tr>
<tr><td>1</td><td>To implement control statements, jump statement, Array and user input using Scanner.

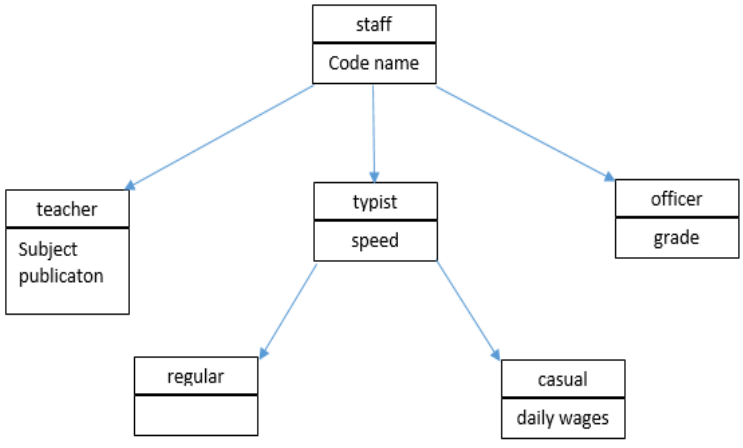
a. Write a Java program to compute body mass index (BMI=wt(KG)/ht(meter)^2). And print message for weight category. (user input using scanner class)

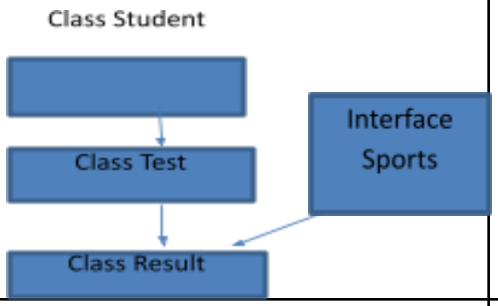
<table>
<tr><td>BMI</td><td>weightcategory</td></tr>
<tr><td>Less than 18.5</td><td>Under weight</td></tr>
<tr><td>18.5 - 24.9</td><td>Normal</td></tr>
<tr><td>25 – 29.9</td><td>Over weight</td></tr>
<tr><td>30 and above</td><td>Very over weight</td></tr>
</table>
b.

c. Write a program to compute sum of integers provided by user. Set the terminating condition for the program as a number -9999. (user input using scanner class)

Write Java program to print below patterns:

1 1</td><td>CO1</td><td></td></tr>
</table>

d.	01 1 2 101 1 2 3 0101 1 2 3 4 Write a program to implement Linear and Binary Search using array also display position of entered number in a given list.		
2	Design a class to represent a bank account. Include the following members: Data members ● Name of the depositor ● Account number ● Type of account ● Balance amount in the account Methods ● To assign initial values ● To deposit an amount ● To withdraw an amount after checking balance (if balance is less than 1000 then display message "No sufficient Fund") ● To display the name and balance	CO1	
3	An educational institution wishes to maintain a data of its employees. The database is divided into a number of classes whose hierarchical relationships are shown in fig. The figure also shows the minimum information required for each class. Especially all the classes and define methods to create the database and retrieve individual information as and when required. (Use Inheritance)  	CO2	

4a. 4b. 4c.	Write a program to demonstrate the concept of constructor and method overloading. Overload method volume() to compute volume of cube, cylinder, Sphere. Write a program to create a class named Shape. Create three sub classes Circle, Triangle and Square, each class has member function area ( ). (Method overriding) Write a program to implement : (interface) 	CO2	
5	Implement a menu driven Program in Java for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX) a. Push an Element on to Stack b. Pop an Element from Stack c. Display the status of Stack d. Exit Support the program with appropriate functions for each of the above operations	CO3	
6	Implement a menu driven Program in Java for the following operations on QUEUE of Characters (Array Implementation of Queue with maximum size MAX) a. Insert an Element on to QUEUE b. Delete an Element from QUEUE c. Display the status of QUEUE d. Exit Support the program with appropriate functions for each of the above operations	CO3	
7	Implement a menu driven Program in Java for the following operations onSinglyLinked List (SLL) of Student Data with the fields: Roll no, Marks. a. Create aSLL of N Students data b. Display the status ofSLL and count the number of nodes in it c. Perform Insertion and Deletion (Given position)	CO3	
8	Implement a menu driven Program in Java for the following operations on DoublyLinked List (DLL) of Employee Data with the fields: SSN, Name a. Create a DLL of N Employees Data by using end insertion.	CO3	

	b. Display the status of DLL and count the number of nodes in it c. Perform Insertion and Deletion at End of DLL d. Perform Insertion and Deletion at Front of DLL		

Course Outcomes:

1. Apply principles of object-oriented programming; create classes, instantiate objects and invoke methods.

2. Implement object oriented features like Encapsulation, Inheritance and Polymorphism.

3. Implement data structures such as stacks, queues and Linked List and apply them to solve common

computer science problems.