**BITS, Pilani - Hyderabad Campus**

**Object-Oriented Programming (CS F213)**

**Lab Revision Sheet (11-10-2021 to 17-10-2021)**

Students are expected to practice the following questions at home. The questions are given based on Inheritance, polymorphism, Strings and Regular Expressions.

**Practice Questions based on Inheritance and Polymorphism**

1. Create a class Person that will have the protected attributes firstname, lastname and idnumber. Define a parameterized constructor that will initialize these attributes. Add a method printPerson() that will display the details of the person in a proper format. (Refer to the Sample Output for the format).

Now create a class Student that will inherit the Person class. Additionally, this class will have private attribute testscores which will be an integer array to hold the testscores of a student in different subjects. Define a parameterized constructor that will initialize all the attributes of the student including his/her testscores. This constructor in turn should call the parameterized constructor of Person class. Now define a method calculate() in the same class that will return the grade secured by the student based on the average of his/her testscores.

Average : Grade

90-100 : O

80-89: E

70-79: A

55-69: P

40-54: D

Less than 40: T

Now, write another class Compute that will have the main() method. This should take the details of the student as input from the user using Scanner and then display the details and grade of the student using the methods of above defined classes.

**Sample Input:**

Sam Jose 8135627

2

100 80

**Sample Output:**

Name: Jose, Sam

ID: 8135627

Grade: O

1. Define a class Student that contains a method checkQualify(). Overload this method for general and non-general (OBC, SC, ST, etc) category students by having an extra parameter for certificate ID in case of non-general category students. The method will print if the student has qualified for the exam or not, the cutoff for which is 50 for general category students and 35 for non-general category students.

Create another class Exam that will contain the main method. Input the marks secured by the student from the user. Additionally, input certificate ID from the user if the student belongs to a non-general category. Output if the student qualified in the examination or not.

**Practice Questions based on Strings and Regular Expressions:**

1. Write a java program that reads a line of text and tokenizes the line using StringTokenizer class based on whitespace as delimiters and outputs only those words beginning with the letter "b".

**Sample Input:**

Bangalore is the capital city of Karnataka and Bombay is the capital city of Maharashtra.

**Output:**

Bangalore

Bombay

1. Write a java program to parse an Apache log file using regular expressions. The Apache log file to be parsed contains the following line:

"123.45.67.89 - - [27/Oct/2000:09:27:09 -0400] \"GET /java/javaResources.html HTTP/1.0\" 200 10450 \"-\" \"Mozilla/4.6 [en] (X11; U; OpenBSD 2.8 i386; Nav)\""

Your program should extract the IP address, Datetime, Request, Response, Bytes sent and Browser info.

**Expected Output:**

IP Address: 123.45.67.89

Date Time: 27/Oct/2000:09:27:09 -0400

Request: GET /java/javaResources.html HTTP/1.0

Response: 200

Bytes Sent: 10450

Browser: Mozilla/4.6 [en] (X11; U; OpenBSD 2.8 i386; Nav)