**LOVELY PROFESSIONAL UNIVERSITY**

**Assignment No. 3**

**School: SCA Faculty of: LFTS**

**Course Title: PROGRAMMING IN JAVA-LAB Course Code:CAP680**

**Section:D2216 Group 1**

**Date of Allotment:20 feb Last Date of Submission: 26 feb**

**Important Guidelines:**

1. Allocated Question according to odd/even roll number in this Assignment.

2. After solving assignment in Sandbox make a pdf file and upload onto the prescribed link which will be shared by faculty member.

3. Refrain from indulging into plagiarism as copy cases will be marked zero

4. For every program it is mandatory to give proper documentation.

**Set-Odd**

Q:1.All the banks operating in India are controlled by RBI. (e.g. minimum interest rate, minimum balance allowed, maximum withdrawal limit etc) which all banks must follow. Suppose RBI has set minimum interest rate applicable to a saving bank account to be 5% annually. however, banks are free to use 4% interest rate or to set any rates above it. Construct a program to implement bank functionality in the above scenario and demonstrate the dynamic polymorphism concept. Note: Create few classes namely Customer, Account, RBI (Base Class) and few derived classes (SBI, ICICI, PNB etc). Assume and implement required member variables and functions in each class.

Testcase1: Enter the Bank name to find the rate of Interest: RBI RBI rate of interest is: 5%

Q2:You are given a class *Solution* and an inner class *Inner.Private*. The main method of class *Solution* takes an integer as input. The *powerof2* in class *Inner.Private* checks whether a number is a power of 2. You have to call the method *powerof2* of the class *Inner.Private* from the *main* method of the class *Solution*.

**Constraints**

1 <= num <= 2^30  
**Sample Input**

8

**Sample Output**

8 is power of 2

An instance of class: Solution.Inner.Private has been created

**Set-Even**

Q:1.A text mining system accepts a sentence as an input. It tries to extract those words which read the same backwards or forwards. This system is interested to extract only such largest and smallest possible words. Develop a java program which can help this text mining system for the extraction of such words from an input sentence.

Example : Input – “Madam, I want to learn malayalam this noon.”

Output – Words are : “noon” and “malayalam”

Q2:A company XYZ is storing its employee’s salary in an array of size N. This company is interested to find out those pairs of employees whose sum of salary is equal to a given number K. Given this array, develop a java program which can help the company to extract such pairs.

Example : Input – N = 5, K = 6000, Salary[] = {1000, 5000, 1000, 7000, 6000}

Output – Pairs are : {1000, 5000}, {5000, 1000}