9.A university has two types of students — graduate students and research students. The University maintains the record of name, age and programme of every student. For graduate students, additional information like percentage of marks and stream, like science, commerce, etc. is recorded; whereas for research students, additionally, specialization and years of working experience, if any, is recorded. Each class has a constructor. The constructor of subclasses makes a call to constructor of the superclass. Assume that every constructor has the same number of parameters as the number of instance variables. In addition, every subclass has a method that may update the instance variable values of that subclass. All the classes have a function display\_student\_info( ), the subclasses must override this method of the base class. Every student is either a graduate student or a research student. Perform the following tasks for the description given above using Java : (i) Create the three classes with proper instance variables and methods, with suitable inheritance. (ii) Create at least one parameterised constructor for each class. (iii) Implement the display\_student\_info( ) method in each class

class Student { String name; int age;

String programme;

Student(String name, int age, String programme) { this.name = name;

this.age = age; this.programme = programme;

}

void displayStudentInfo() { System.out.println("Name: " + name);

System.out.println("Age: " + age); System.out.println("Programme: " + programme);

}

}

class GraduateStudent extends Student { double percentage;

String stream;

GraduateStudent(String name, int age, String programme, double percentage, String stream) {

super(name, age, programme); this.percentage = percentage; this.stream = stream;

}

@Override

void displayStudentInfo() { super.displayStudentInfo(); System.out.println("Percentage: " + percentage); System.out.println("Stream: " + stream);

}

}

class ResearchStudent extends Student { String specialization;

int yearsOfWorkingExperience;

ResearchStudent(String name, int age, String programme, String specialization, int yearsOfWorkingExperience) {

super(name, age, programme); this.specialization = specialization;

this.yearsOfWorkingExperience = yearsOfWorkingExperience;

}

@Override

void displayStudentInfo() { super.displayStudentInfo();

System.out.println("Specialization: " + specialization);

System.out.println("Years of Working Experience: " + yearsOfWorkingExperience);

}

}

public class UniversityStudents {

public static void main(String[] args) {

GraduateStudent gradStudent = new GraduateStudent("John", 22, "Graduate", 85.5, "Science");

ResearchStudent researchStudent = new ResearchStudent("Jane", 28, "Research", "Biology", 3);

System.out.println("Graduate Student Information:"); gradStudent.displayStudentInfo();

System.out.println("\nResearch Student Information:"); researchStudent.displayStudentInfo();

}

}