***Object Oriented Programming -1***

***Lab Task***

***Summer\_19-20***

***Task-1***

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| ***Person // make it abstract*** |
| private String name  private int age  protected String phoneNo  protected String email  protected boolean occupation |
| public Person()  public void setName(String name)  public void setAge(int age)  public String getName()  public int getAge()  public void setPhoneNo(String PhoneNo)  public String getPhoneNo()  public void setEmail(String email)  public String getEmail()  abstract boolean hasOccupation() // abstract method  abstract public void display() // abstract method |

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| ***Student // Non-abstract, will inherit Person class*** |
| private String id  private double cgpa |
| public Student()  public void setID(String id)  public void setCGPA(double cgpa)  public String getID()  public double getCGPA()  // Since it will be a non-abstract class so this class must provide the implementation of abstract methods of parent class. So, implement both abstract methods from the Person class. And display() method will show all the information including the occupation. |

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| ***Employee // Non-abstract, it will also inherit Person class*** |
| private String id  private int salary |
| public Employee()  public void setID(String id)  public void setSalary(int salary)  public String getID()  public int getSalary()  // Since it will be a non-abstract class so this class must provide the implementation of abstract methods of parent class. So, implement both abstract methods from the Person class. And display() method will show all the information including the occupation. |

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| ***Start*** |
| In the main method create an object of Student and Employee class and call the hasOccupation method and display() method to show all the information.  \*\*\*As for abstract class we cannot instantiate any object using new keyword but can store the reference of its subclass. So, take a object variable of Person class and store the reference of its both child class and again call the display method other methods to show all information. |

***Task-2***

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| Shape |
| protected double height  protected double width |
| public Shape()  public Shape(…)  public abstract void draw() ;  public abstract void calculateArea() ;  public abstract void show() ; |

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| Rectangle(Will inherit Shape class) |
| public Rectangle()  public Rectangle(…)  // Will implement all the abstract method of it’s parent class. In the draw method print some relevant messages. And in the calculateArea method calculate the area. In the show method print height, width and the area. |

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| Triangle(Will inherit Shape class) |
| public Triangle()  public Triangle(…)  // Will implement all the abstract method of it’s parent class. In the draw method print some relevant messages. And in the calculateArea method calculate the area. In the show method print height, width and the area. |

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| Main |
| In the main method create object of Shape class and store the references of its child classes. The same object will act differently based on the reference. Then using the object call all the methods and show the output. |