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**Submitted to:**

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| --- | --- |
| Moderator | Ms, Sajida Kalsoom |

**Lab Task 01:**

class person{

    //  name, address, phone number, and email address.

    protected String name;

    protected String address;

    protected String phone;

    protected String gmail;

    person(){

    }

    person(String name,String address, String phonenumber, String email){

    this.name=name;

     this.address=address;

     this.phone=phonenumber;

     this.gmail=email;

    }

    public void setname(String name){

        this.name=name;

    }

    public void setaddress(String address){

       this.address=address;

    }

    public void setphone(String phonenumber){

         this.phone=phonenumber;

    }

    public void setemail(String email){

        this.gmail=email;

    }

    public String getName(){

        return name;

    }

    public String getaddress(){

        return address;

    }

    public String getphone(){

        return phone;

    }

    public String getemail(){

        return gmail;

    }

    public String toString(){

        return "name= " + name + " , phone= " + phone + " , address= "+ address +" , email= " + gmail;

    }

}

class student extends person{

    protected String status;

    student(){

    }

    student(String name,String address, String phonenumber, String email,String status){

        super( name, address, phonenumber,  email);

        this.status=status;

    }

    public void setStatus(String status){

        this.status=status;

    }

    public String getStatus(){

        return status;

    }

    public String toString(){

        return super.toString() + " , status = "+status;

    }

}

class employee extends person{

    // An employee has an office, salary, and date hired. Use the Date class to create an object for date hired.

   protected String office;

   protected double salary;

   protected Date dateHired;

   employee(){

   }

   employee(String name,String address, String phonenumber, String email,String off, double salary,Date datehired){

    super(name,address, phonenumber, email);

    this.office=off;

    this.salary=salary;

    this.dateHired=datehired;

   }

   public void setOffice(String office){

    this.office=office;

   }

   public void setsalary(double salary){

    this.salary=salary;

   }

   public void setDate(Date Date){

    this.dateHired=Date;

   }

   public String getOffice(){

    return office;

   }

   public double getSalary(){

    return salary;

   }

   public Date getDate(){

    return dateHired;

   }

   public String toString(){

    return super.toString()+"office= "+ office + " , salary= "+salary +" , Date = "+dateHired;

   }

}

class faculty extends employee{

    protected String Rank;

     protected double officehours;

     faculty(){

     }

     faculty(String name,String address, String phonenumber, String email,String off, double salary,Date datehired,String Rank,double hrs){

        super(name,address, phonenumber, email, off,  salary,datehired);

        this.Rank=Rank;

        this.officehours=hrs;

     }

     public void setRank(String Rank){

        this.Rank=Rank;

     }

     public void setOfficeHours(double hrs){

        this.officehours=hrs;

     }

     public String getRank(){

        return Rank;

     }

     public double getOfficeHours(){

        return officehours;

     }

     public String toString(){

        return super.toString()+ " Rank= "+Rank+", office Hourse= "+officehours;

     }

}

class staff extends employee{

    protected String title;

    staff(){

    }

    staff(String name,String address, String phonenumber, String email,String off, double salary,Date datehired,String title){

         super( name, address,  phonenumber, email, off,  salary, datehired);

        this.title=title;

    }

    public void setTitle(String title){

        this.title=title;

    }

    public String getTitle(){

        return title;

    }

}

class Date{

   protected int day;

   protected int month;

   protected int year;

    Date(){

    }

    Date(int d,int m,int y){

        this.day=d;

        this.month=m;

        this.year=y;

    }

    public void setday(int d){

        this.day=d;

    }

    public void setmonth(int m){

        this.month=m;

    }

    public void setyear(int y){

        this.year=y;

    }

    public int getday(){

        return day;

    }

    public int getmonth(){

        return month;

    }

    public int getyear(){

        return year;

    }

    public String toString(){

        return day + "/" + month + "/" + year;

    }

}

public class LabTask1{

    public static void main(String[] args) {

        Date D1=new Date(12,9,2020);

        student S1=new student("Habib","house no 59", "00923485149398","idrhabib5@gmail.com","enrolled");

        System.out.println(S1.toString());

        employee e1=new employee("Habib","House no 59","03485148387","idrhabib@gmail.com","FGEHA",12000,D1);

        System.out.println(e1.toString());

        faculty f1=new faculty("Ali","House no 59", "03485148387","idrhabib5@gmail.com","FGEHA",12999,D1,"Inspector",1200);

        System.out.println(f1.toString());

    }

}

**Lab Task 02:**

class publication{

    protected String title;

    protected double price;

    publication(){

    };

    publication(String t, double p){

        this.title=t;

        this.price=p;

    }

    public void setTitle(String t){

        this.title=t;

    }

    public void setPrice(double p){

        this.price=p;

    }

    public String getTitle(){

        return title;

    }

    public double getPrice(){

        return price;

    }

    public String toString(){

        return "Title is:"+ title +", and Price is: "+price;

    }

}

class book extends publication{

    protected int pageCount;

    book(){

    }

    book(String t, double p,int count){

        super(t,p);

        this.pageCount=count;

    }

    public void setpageCount(int count){

        this.pageCount=count;

    }

    public int getPageCount(){

        return pageCount;

    }

    public String toString(){

        return super.toString()+", page count: "+pageCount;

    }

}

class tape extends publication{

    protected int playingmin;

    tape(){};

    tape(String t, double p,int min){

        super(t,p);

        this.playingmin=min;

    }

    public void setMin(int min){

        this.playingmin=min;

    }

    public int getMin(){

        return playingmin;

    }

    public String toString(){

        return super.toString()+", Playing minutes are: "+playingmin;

    }

}

public class LabTask2 {

    public static void main(String[] args) {

        publication p1=new publication("alie",1200);

        System.out.println(p1.toString());

        book b1=new book("ale",1200,3);

        System.out.println(b1.toString());

        tape t1=new tape("alie",1200,34);

        System.out.println(t1.toString());

    }

}

**Lab Task 03:**

class Computer{

//      contains data members of wordsize(in bits), memorysize (in megabytes),

// storagesize (in megabytes) and speed (in megahertz)

protected int wordSize;

protected int memorySize;

protected int storageSize;

protected int megahertz;

Computer(){

}

Computer(int w,int m,int s,int mega){

    this.wordSize=w;

    this.memorySize=m;

    this.storageSize=s;

    this.megahertz=mega;

}

public void setWordsize(int W){

    this.wordSize=W;

}

public void setmemorySize(int M){

    this.memorySize=M;

}

public void setStorageSize(int S){

    this.storageSize=S;

}

public void setmegaHertz(int M){

    this.megahertz=M;

}

public int getWordSize(){

    return wordSize;

}

public int getmemorySize(){

    return memorySize;

}

public int getStorageSize(){

    return storageSize;

}

public int getmegaHerz(){

    return megahertz;

}

public String toString(){

    return "WordSize: "+wordSize+ "bits" +", memory Size: "+memorySize+" in mbs"+" ,Storage Size:  "+storageSize+ " and mega hertz:  "+megahertz;

}

}

class Laptop  extends Computer{

    //  specifies the object’s length, width, height, and weight.

   protected double length;

   protected double height;

   protected double weight;

   Laptop(){}

   Laptop(int w,int m,int s,int mega,double length,double height,double weight){

    super(w,m,s,mega);

    this.length=length;

    this.height=height;

    this.weight=weight;

   }

   public void setLength(int l){

    this.length=l;

   }

   public void setheight(int h){

    this.height=h;

   }

   public void setweight(int w){

    this.weight=w;

   }

public double getHeight(){

    return height;

}

public double getWeight(){

    return weight;

}

public double getLength(){

    return length;

}

public String toString(){

    return super.toString()+" , length is: "+length+" , Height is "+height+" , weight is:"+weight;

}

}

public class LabTask3 {

    public static void main(String[] args) {

        Computer C1=new Computer(12,34,55,44);

        System.out.println(C1.toString());

        Laptop L1=new Laptop(12,34,56,77,88,44,55);

        System.out.println(L1.toString());

    }

}