

PROGRAMM

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package lab_assignment1;

import java.util.Scanner;
//Abstract class called SuperHero
abstract class SuperHero
{
    String Hero_Name;
    String Real_Name;
    String Hero_Occupation;
    String Hero_Description;
    int Hero_Age;
    boolean Can_Fly;
    //Constructor with no parameters
    SuperHero()
    {
        Hero_Name="Nill";
        Real_Name="Nill";
        Hero_Occupation="Nill";
        Hero_Description="Nill";
        Hero_Age=-1;
        Can_Fly=false;
    }
    //COnstructor with required parameters
    SuperHero(String HeroName, String RealName, String Occupation, String Description,
    int Age, boolean Fly)
    {
        this.Hero_Name=HeroName;
        this.Real_Name=RealName;
        this.Hero_Occupation=Occupation;
        this.Hero_Description=Description;
        this.Hero_Age=Age;
        this.Can_Fly=Fly;
    }
    //To String method to display all the values
    public String toString()
    {
        return "\nHeroName :"+Hero_Name+"\nRealName: "+Real_Name+"\nOcc:
"+Hero_Occupation+"\nDescription: "+Hero_Description+"\nAge: "+Hero_Age+"\nFly:
"+Can_Fly+"\n";
    }
    //attack and rest methods
    abstract void Attack(String name);
    abstract void Rest();
}
//PhysicalHero extended class of parent called SuperHero
class PhysicalHero extends SuperHero
{
    int Hero_strength;
    PhysicalHero()
    {
        super();
        Hero_strength=0;
    }
}
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        PhysicalHero(String HeroName, String RealName, String Occupation, String
Description, int Age, boolean Fly, int strength)
    {
        super(HeroName, RealName, Occupation, Description, Age, Fly);
        this.Hero_strength=strength;
    }
    public String toString()
    {
        return "\nHero Name :"+Hero_Name+"\nReal Name: "+Real_Name+"\nOccupation:
"+Hero_Occupation+"\nDescription: "+Hero_Description+"\nAge: "+Hero_Age+"\nCan Fly:
"+Can_Fly+"\nStrength: "+Hero_strength+"%\n";
    }
    void Attack(String attck_nme)
    {
        int damage=0;
        if(attck_nme=="Slap")
            damage=100;
        else if(attck_nme=="Fire Ball")
            damage=180;
        else if(attck_nme=="Sword")
            damage=240;
        else if(attck_nme=="Spell")
            damage=500;
        else if(attck_nme=="Arrow")
            damage=700;
        else if(attck_nme=="Solar rays")
            damage=1000;
        Hero_strength-=damage;
        System.out.println("\n"+Hero_Name+ " used "+attck_nme);
        System.out.println("Physical Strength decreased!\nPhysical Strength Is:
"+Hero_strength);
    }
    void Rest()
    {
        Hero_strength+=10;
        System.out.println("\n"+Hero_Name+" rested!\nPhysical Strength
increased!\nPhysical Strength: "+Hero_strength);
    }
}

class MageHero extends SuperHero
{
    int mana_power;
    MageHero()
    {
        super();
        mana_power=-1;
    }
    MageHero(String HeroName, String RealName, String Occupation, String Description,
int Age, boolean Fly, int mana)
    {
        super(HeroName, RealName, Occupation, Description, Age, Fly);
        this.mana_power=mana;
    }
    public String toString()
    {
        return "\nHero Name :"+Hero_Name+"\nReal Name: "+Real_Name+"\nOccupation:
"+Hero_Occupation+"\nDescription: "+Hero_Description+"\nAge: "+Hero_Age+"\nCan Fly:
"+Can_Fly+"\nMana: "+mana_power+"\n";
    }
}

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    }
    void Attack(String attck_nme)
    {
        int pow=0;
        if(attck_nme=="Electric shock")
            pow=1000;
        else if(attck_nme=="Poison")
            pow=3500;
        else if(attck_nme=="Bolt")
            pow=500;
        mana_power-=pow;
        System.out.println("\n"+Hero_Name+ " used "+attck_nme);
        System.out.println("Mana decreased!\nMana Capacity: "+mana_power);
    }
    void Rest()
    {
        mana_power+=5;
        System.out.println("\n"+Hero_Name+" regained energy!\nMana increased!\nMana Capacity: "+mana_power);
    }
}

class Vigilante extends SuperHero
{
    String Weapon;
    Vigilante()
    {
        super();
        Weapon="Nill";
    }
    Vigilante(String HeroName, String RealName, String Occupation, String Description,
    int Age, boolean Fly, String Weapon)
    {
        super(HeroName, RealName, Occupation, Description, Age, Fly);
        this.Weapon=Weapon;
    }
    public String toString()
    {
        return "\nHero Name :"+Hero_Name+"\nReal Name: "+Real_Name+"\nOccupation: "+Hero_Occupation+"\nDescription: "+Hero_Description+"\nAge: "+Hero_Age+"\nCan Fly: "+Can_Fly+"\nWeapon: "+Weapon+"\n";
    }
    void Attack(String attck_nme)
    {
        System.out.println("\n"+Hero_Name+" used weapon: "+attck_nme);
    }
    void Rest() {
        System.out.println("\nIn rest "+Hero_Name+" Reloaded his "+Weapon);
    }
}

class Speedster extends PhysicalHero
{
    int Hero_speed;
    int Hero_calorie;
    Speedster(String HName, String RName, String Occ, String Des, int Age, boolean Fly, int str, int speed, int calorie)
    {
        super(HName, RName, Occ, Des, Age, Fly, str);
    }

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        this.Hero_speed=speed;
        this.Hero_calorie=calorie;
    }
    public String toString()
    {
        return "\nHero Name :"+Hero_Name+"\nReal Name: "+Real_Name+"\nOccupation:
"+Hero_Occupation+"\nDescription: "+Hero_Description+"\nAge: "+Hero_Age+"\nCan Fly:
"+Can_Fly+"\nStrength: "+Hero_strength+"%"+"\nSpeed: "+Hero_speed+"\nCalorie Intake:
"+Hero_calorie+"\n";
    }
}

public class Lab_program {

    public static void main(String[] args) {

        Scanner input= new Scanner(System.in);
        int choice;
        boolean contt = true;
        PhysicalHero phy_hero1=new PhysicalHero("Super Man","Stark
Dent","Journalst","Stark Dent is a man with extra ordinary srength.\nHe can see through
walls and has night vision.\nHe is also a very good singer",3000,true,6000);
        PhysicalHero phy_hero2=new PhysicalHero("Flash","Jay
Garrick","Professor","As the Flash, Garrick can run at superhuman speeds \nand has
superhumanly-fast reflexes. The limits\n of his speed have fluctuated over the years,
though he has\n usually been second to DC's \nflagship Flash\n", Barry
Allen",7000,true,60089);
        MageHero meg_hero1=new MageHero("Vision","Android","Alien","The strengths
of visions are advanced robotic systems and solar power \ncells. If the Vision wishes,
he can convert \nthe solar energy into beams of infrared or microwave
radiation",5346,true,2389);
        MageHero meg_hero2=new MageHero("Invisible Hood","Art
Pinajian","Detective","This super hero uses his magical coated jacket for\n invisibility
and hence solve the crimes affactively",5346,false,60089);
        Vigilante veg_hero1=new Vigilante("Doctor
Occult","Richard","Investigator","Doctor Occult has the powers of astral projection,\n
hypnosis, illusion creating, and telekinesis. \nHe wields a powerful talisman, a sphere
or disc with a black \nand white pattern, called the Mystic Symbol of the
Seven",5000,false,"Disc");
        Vigilante veg_hero2=new Vigilante("Arrow","Ralph Phyne","Millitary
Agent","The Arrow is actually Ralph Payne, a military intelligence\n agent who uses his
archery skills to fight \ncrime. He delivers messages via arrow, both to criminals and
\nthe police, and uses his bow to kill the evildoers",2000,false,"Archer");
        Speedster sped_hero1=new Speedster("The Bolt","Larry Fallen","Plitical
Party Leader","Lary is most popular poltician from Los Vegas\n He got his super speed
during his recovery\n from a fall coming down the stairs during a speech.Larry uses\n
his speed to keep political gatherings under control",5346,true,6089,1020,4540);
        Speedster sped_hero2=new Speedster("Groot","Stan Lee","Monarch of Planet X
tree","Groot can absorb wood as food, and has the ability \nto regenerate. Groot can
control trees \nand plants, using them to attack others, and appears to be \nresistant
to fire. Groot is able to sprout dramatically increasing
mass",5346,false,60089,4540,50450);

        do
        {
            System.out.println("1:DISPLAY HERO'S DATA");
            System.out.println("2: DISPLAY ATTACK");
            System.out.println("3: DISPLAY REST");
            System.out.println("4: EXIT THE HERO WORLD");

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System.out.println("\n\nEnter your choice---->");
choice=input.nextInt();
switch(choice)
{
case 1:
    System.out.println(phy_hero1.toString());
    System.out.println(phy_hero2.toString());
    System.out.println(meg_hero1.toString());
    System.out.println(meg_hero2.toString());
    System.out.println(veg_hero1.toString());
    System.out.println(veg_hero2.toString());
    System.out.println(sped_hero1.toString());
    System.out.println(sped_hero2.toString());
    break;
case 2:
    phy_hero1.Attack("Slap");
    phy_hero2.Attack("Fire Ball");
    meg_hero1.Attack("Electric shock");
    meg_hero2.Attack("Poison");
    veg_hero1.Attack("Magical Cloak");
    veg_hero2.Attack("Arrow");
    sped_hero1.Attack("Spell");
    sped_hero2.Attack("Solar Rays");
    break;
case 3:
    phy_hero1.Rest();
    phy_hero2.Rest();
    meg_hero1.Rest();
    meg_hero2.Rest();
    veg_hero1.Rest();
    veg_hero2.Rest();
    break;
case 4:
    System.out.println("Fight Ended");
    contt=false;
}

while(contt);
}
}

```

OUTPUT

Problems @ Javadoc Declaration Console X Progress Coverage Error Log

<terminated> Lab_program [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 15, 2021, 10:30:58 AM – 10:31:15 AM)

```
1:DISPLAY HERO'S DATA
2: DISPLAY ATTACK
3: DISPLAY REST
4: EXIT THE HERO WORLD

Enter your choice---->
1

Hero Name :Super Man
Real Name: Stark Dent
Occupation: Journalst
Description: Stark Dent is a man with extra ordinary srength.
He can see through walls and has night vision.
He is also a very good singer
Age: 3000
Can Fly: true
Strength: 6000%

Hero Name :Flash
Real Name: Jay Garrick
Occupation: Professor
Description: As the Flash, Garrick can run at superhuman speeds
and has superhumanly-fast reflexes. The limits
  of his speed have fluctuated over the years, though he has
  usually been second to DC's "flagship Flash", Barry Allen
Age: 7000
Can Fly: true
Strength: 60089%

Hero Name :Vision
Real Name: Android
Occupation: Alien
Description: The strengths of visions are advanced robotic systems and solar power
cells. If the Vision wishes, he can convert
the solar energy into beams of infrared or microwave radiation
Age: 5346
Can Fly: true
Mana: 2389

Hero Name :Invisible Hood
Real Name: Art Pinajian
Occupation: Detective
Description: This super hero uses his magical coated jacket for
  invisibility and hence solve the crimes affactively
Age: 5346
Can Fly: false
Mana: 60089
```

<terminated> Lab_program [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 15, 2021, 10:30:58 AM – 10:31:15 AM)

Hero Name :Doctor Occult
Real Name: Richard
Occupation: Investigator
Description: Doctor Occult has the powers of astral projection, hypnosis, illusion creating, and telekinesis.
He wields a powerful talisman, a sphere or disc with a black and white pattern, called the Mystic Symbol of the Seven
Age: 5000
Can Fly: false
Weapon: Disc

Hero Name :Arrow
Real Name: Ralph Phyne
Occupation: Millitary Agent
Description: The Arrow is actually Ralph Payne, a military intelligence agent who uses his archery skills to fight crime. He delivers messages via arrow, both to criminals and the police, and uses his bow to kill the evildoers
Age: 2000
Can Fly: false
Weapon: Archer

Hero Name :The Bolt
Real Name: Larry Fallen
Occupation: Plitical Party Leader
Description: Lary is most popular poltician from Los Vegas
He got his super speed during his recovery from a fall coming down the stairs during a speech.Larry uses his speed to keep political gatherings under control
Age: 5346
Can Fly: true
Strength: 6089%
Speed: 1020
Calorie Intake: 4540

Hero Name :Groot
Real Name: Stan Lee
Occupation: Monarch of Planet X tree
Description: Groot can absorb wood as food, and has the ability to regenerate. Groot can control trees and plants, using them to attack others, and appears to be resistant to fire. Groot is able to sprout dramatically increasing mass
Age: 5346
Can Fly: false
Strength: 60089%
Speed: 4540
Calorie Intake: 50450

Problems Javadoc Declaration Console X Progress Coverage Error Log
<terminated> Lab_program [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 15, 2021, 10:30:58 AM – 10:31:15 AM)

```
1:DISPLAY HERO'S DATA
2: DISPLAY ATTACK
3: DISPLAY REST
4: EXIT THE HERO WORLD
```

Enter your choice---->

2

Super Man used Slap
Physical Strength decreased!
Physical Strength Is: 5900

Flash used Fire Ball
Physical Strength decreased!
Physical Strength Is: 59909

Vision used Electric shock
Mana decreased!
Mana Capacity: 1389

Invisible Hood used Poison
Mana decreased!
Mana Capacity: 56589

Doctor Occult used weapon: Magical Cloak

Arrow used weapon: Arrow

The Bolt used Spell
Physical Strength decreased!
Physical Strength Is: 5589

Groot used Solar Rays
Physical Strength decreased!
Physical Strength Is: 60089
1:DISPLAY HERO'S DATA
2: DISPLAY ATTACK
3: DISPLAY REST
4: EXIT THE HERO WORLD

Enter your choice---->

3

Super Man rested!
Physical Strength increased!
Physical Strength: 5910

Flash rested!
Physical Strength increased!
Physical Strength: 59919

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Problems @ Javadoc Declaration Console X Progress Coverage Error Log
<terminated> Lab_program [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 15, 2021, 10:30:58 AM – 10:31:15 AM)
Mana Capacity: 56589

Doctor Occult used weapon: Magical Cloak

Arrow used weapon: Arrow

The Bolt used Spell
Physical Strength decreased!
Physical Strength Is: 5589

Groot used Solar Rays
Physical Strength decreased!
Physical Strength Is: 60089
1:DISPLAY HERO'S DATA
2: DISPLAY ATTACK
3: DISPLAY REST
4: EXIT THE HERO WORLD

Enter your choice---->
3

Super Man rested!
Physical Strength increased!
Physical Strength: 5910

Flash rested!
Physical Strength increased!
Physical Strength: 59919

Vision regained energy!
Mana increased!
Mana Capacity: 1394

Invisible Hood regained energy!
Mana increased!
Mana Capacity: 56594

In rest Doctor Occult Reloaded his Disc

In rest Arrow Reloaded his Archer

1:DISPLAY HERO'S DATA
2: DISPLAY ATTACK
3: DISPLAY REST
4: EXIT THE HERO WORLD

Enter your choice---->
4
Fight Ended