#### **Task 1**

Write a function **trim()** that will take an array of characters as an input and remove multiple consecutive spaces from the array (**You cannot use the String class in java**). Following example code generates the output below:

**public class Trim{**

**public static char [] trim(char [] input){**

**//Your code here**

**}**

**public static void main(String [] args){**

**char [] input = {'T','h','i','s',' ',' ',' ',' ',' ','i','s',' ',' ',' ',' ','a',' ',' ',' ',' ','t','e','s','t','.'};**

**for (int i = 0; i< input.length; i++){**

**System.out.print(input[i]);**

**}**

**System.out.println("");**

**char [] output = trim(input);**

**for (int i = 0; i< output.length; i++){**

**System.out.print(output[i]);**

**}**

**System.out.println("");**

**}**

**}**

**This is a test.**

**This is a test.**

#### **Task 2**

Write a **Java Code** of a program that reads in a string (UPPER-case letters only) from the **user** and prints the letter that occurs **second** most often.

For example, if the user enters the word “REFERENCES”, your program should print the character R because the word has 4 E, 2 R, and all other character only once.

**Notes:**

**s.length()** returns the length of a string **s**.

**s.charAt(int index)** returns the character at the specified index of string **s**. An index ranges from 0 to length() - 1.

#### **Task 3**

Write a **Java Code** of a function that takes an array of integers (of positive and negative numbers) and the length or size of the array as parameters, then modifies the array by getting rid of the negative elements (the numbers after the removed one will have to shift forward to fill the gap of course). If there are multiple negative elements, remove all of those. The function returns the new size of the array.

#### **Task4**

Write the **removeOdd** function below which takes in an array of numbers that has even and odd numbers mixed. This function **removes** the odd numbers and returns a **compact** array which only has the even numbers. For example output of the following code is:

**Sample Input**

21 33 44 66 11 1 88 45 10 9

**Sample Output**

44 66 88 10

**public class Test{**

**public static int [] removeOdd (int [] input){**

**//Your code here**

**}**

**public static void main(String [] args){**

**int [] mixedArray = {21, 33, 44, 66, 11, 1, 88, 45, 10, 9};**

**for (int i = 0; i < mixedArray.length; i++) {**

**System.out.print(mixedArray[i] + " ");**

**}**

**System.out.println();**

**int [] noOdd = removeOdd(mixedArray);**

**for (int i = 0; i < noOdd.length; i++) {**

**System.out.print(noOdd[i] + " ");**

**}**

**}**

**}**

**Task 5**

Complete the **Student** class so that the **main** method prints the following:

**Name of the Student: Bob**

**ID of the Student: 1**

**Name of the Student: Tom**

**ID of the Student: 2**

**Name of the Student: Jack**

**ID of the Student: 3**

**Name of the Student: Jill**

**ID of the Student: 4**

**public class Student{**

**//Your code here**

**}**

**public class Printer{**

**public void printDetail(Student s){**

**System.out.println("Name of the Student: "+s.name);**

**System.out.println("ID of the Student: "+s.id);**

**}**

**}**

**public class Test{**

**public static void main(String [] args){**

**Student s1 = new Student("Bob", 1);**

**Student s2 = new Student("Tom", 2);**

**Student s3 = new Student("Jack", 3);**

**Student s4 = new Student("Jill", 4);**

**Printer pr = new Printer();**

**pr.printDetail(s1);**

**pr.printDetail(s2);**

**pr.printDetail(s3);**

**pr.printDetail(s4);**

**}**

**}**

Task 6

|  |
| --- |
| **public class Cat{** |
| public String color = "White"; |
| public String action = "sitting"; |
| //your code here |
| **}** |
| **public class Test{** |
| public static void main(String [] args){ |
| Cat c1 = new Cat(); |
| Cat c2 = new Cat("Black"); |
| Cat c3 = new Cat("Brown", "jumping"); |
| Cat c4 = new Cat("Red", "purring"); |
| c1.printCat(); |
| c2.printCat(); |
| c3.printCat(); |
| c4.printCat(); |
| c1.changeColor("Blue"); |
| c3.changeColor("Purple"); |
| c1.printCat(); |
| c3.printCat(); |
| } |
| **}** |

Complete the **Cat** class so the **main** method above produces the following output:

**White cat is sitting**

**Black cat is sitting**

**Brown cat is jumping**

**Red cat is purring**

**Blue cat is sitting**

**Purple cat is jumping**

**Task 7**

**Using the StudentDriver class and it’s outputs given below, write the Student class:**

|  |
| --- |
| **public class StudentDriver** |
| **{** |
| **public static void main(String[] args)** |
| **{** |
| **Student s1;** |
| **s1= new Student();** |
| **System.out.println(s1);** |
| **System.out.println(s1.nameDao());** |
| **System.out.println(s1.boloToAmiKe());** |
| **System.out.println(s1.addressDao());** |
| **System.out.println(s1.cgpaDao());** |
| **s1.nameBoshao("Tonmoy Dewanjee");** |
| **s1.addressBoshao("Mirpur");** |
| **s1.idBoshao("16301157");** |
| **s1.cgpaBoshao(4.0);** |
| **System.out.println(s1.nameDao());** |
| **System.out.println(s1.boloToAmiKe());** |
| **System.out.println(s1.addressDao());** |
| **System.out.println(s1.cgpaDao());** |
| **Student s2 = new Student("Azibun Nuder","16301045","Uttara",4.0);** |
| **System.out.println(s2);** |
| **System.out.println(s2.nameDao());** |
| **System.out.println(s2.boloToAmiKe());** |
| **System.out.println(s2.addressDao());** |
| **System.out.println(s2.cgpaDao());** |
| **Student s3 = new Student();** |
| **System.out.println(s3);** |
| **System.out.println(s3.nameDao());** |
| **System.out.println(s3.boloToAmiKe());** |
| **System.out.println(s3.addressDao());** |
| **System.out.println(s3.cgpaDao());** |
| **s1.standUp();** |
| **s2.standUp();** |
| **System.out.println(s1.tellMeYourName());** |
| **System.out.println(s2.tellMeYourName());** |
| **s1.call("Sumit Dutta");** |
| **s2.call("Ananya Ritu");** |
| **System.out.println(s1.add2Numbers(2,3));** |
| **}** |
| **}** |

**Output:**

|  |
| --- |
| **Student@109dfdfd** |
| **Ei name e kono student nai** |
| **Student ei nai, abar id :P** |
| **Naam nai .. thikana ashbe koi theke?** |
| **-4.0** |
| **Tonmoy Dewanjee** |
| **16301157** |
| **Mirpur** |
| **4.0** |
| **Student@57d8e362** |
| **Azibun Nuder** |
| **16301045** |
| **Uttara** |
| **4.0** |
| **Student@5de5bb3c** |
| **Ei name e kono student nai** |
| **Student ei nai, abar id :P** |
| **Naam nai .. thikana ashbe koi theke?** |
| **-4.0** |
| **Tonmoy Dewanjee is now standing up!!** |
| **Azibun Nuder is now standing up!!** |
| **Sir, my name is Tonmoy Dewanjee** |
| **Sir, my name is Azibun Nuder** |
| **Tonmoy Dewanjee: Hey, Sumit Dutta, Sir is calling you!!** |
| **Azibun Nuder: Hey, Ananya Ritu, Sir is calling you!!** |
| **5** |

#### **Task 8**

|  |
| --- |
| **public class FinalT6A{** |
| **public int temp = 4;** |
| **private int sum;** |
| **private int y = 1;** |
| **public FinalT6A(int x, int p){** |
| **temp+=1;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 3 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(2,1);**  **q1.methodA();**  **q1.methodA();** | **x** | **y** | **sum** |
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#### **Task 9**

|  |  |
| --- | --- |
|  | **class msgClass{** |
|  | **public int content;** |
|  | **}** |
|  |  |
|  | **public class Q5{** |
|  | **private int sum;** |
|  | **private int y;** |
|  | **public int x;** |
|  | **public Q5(){** |
|  | **sum = 3;** |
|  | **x = 1;** |
|  | **y = 6;** |
|  | **}** |
|  | **public void methodA(){** |
|  | **int x=1, y=1;** |
|  | **msgClass [] msg = new msgClass[1];** |
|  | **msgClass myMsg = new msgClass();** |
|  | **myMsg.content = this.x;** |
|  | **msg[0] = myMsg;** |
|  | **msg[0].content = this.y + myMsg.content;** |
|  | **this.y = this.y + methodB(msg[0]);** |
|  | **y = methodB(msg[0]) + this.y;** |
|  | **x = y + methodB(msg, msg[0]);** |
|  | **sum = x + y + msg[0].content;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **}** |
|  | **private int methodB(msgClass [] mg2, msgClass mg1){** |
|  | **int x = 1;** |
|  | **y = y + mg2[0].content;** |
|  | **mg2[0].content = y + mg1.content;** |
|  | **x = x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **mg1.content = sum - mg2[0].content ;** |
|  | **System.out.println(this.x + " " + this.y+ " " + sum);** |
|  | **return sum;** |
|  | **}** |
|  | **private int methodB(msgClass mg1){** |
|  | **int x = 1, y = 1;** |
|  | **y = sum + mg1.content;** |
|  | **this.y = y + mg1.content;** |
|  | **x = this.x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **this.x = mg1.content + x + 2;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **return y;** |
|  | **}** |
|  | **}** |

**Write the output of the following code: [Answer on the question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q5 q = new Q5();**  **q.methodA();** | **x** | **y** | **sum** |

**Task 7**

|  |
| --- |
| **public class Quiz3A{** |
| **public static int temp = 4;** |
| **public int sum;** |
| **public int y;** |
| **public Quiz3A(){** |
| **y = temp - 1;** |
| **sum = temp + 1;** |
| **temp+=2;** |
| **}** |
| **public Quiz3A(int k){** |
| **temp = temp++;** |
| **sum = ++temp + k;** |
| **y = sum - 1;** |
| **}** |
| **public int methodB(int m, int n){** |
| **int x = 0;** |
| **y = y + m + (++temp);** |
| **x = x + 2 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

**Consider the following code:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Quiz3A a1 = new Quiz3A();**  **a1.methodB(1,2);**  **Quiz3A a2 = new Quiz3A(3);**  **a2.methodB(2,4);**  **a1.methodB(2,1);**  **a2.methodB(1,3);** | **x** | **y** | **sum** |
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**Task 8**

|  |
| --- |
| **public class FinalT6A{** |
| **public int temp = 3;** |
| **private int sum;** |
| **private int y = 2;** |
| **public FinalT6A(int x, int p){** |
| **temp+=3;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 2 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(2,1);**  **q1.methodA();**  **FinalT6A q2 = new FinalT6A(4,5);**  **q2.methodA();** | **x** | **y** | **sum** |
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**Task:**

|  |  |
| --- | --- |
| 1 | **public class Scope{** |
| 2 | **public int x = 1;** |
| 3 | **public int y = 100;** |
| 4 | **public void met1(){** |
| 5 | **int x = 3;** |
| 6 | **x = this.x + 1;** |
| 7 | **y = y + this.x + 1;** |
| 8 | **x = y + met2(x+y) + y;** |
| 9 | **System.out.println(x);** |
| 10 | **System.out.println(y);** |
| 11 | **}** |
| 12 | **public int met2(int y){** |
| 13 | **System.out.println(x);** |
| 14 | **System.out.println(y);** |
| 15 | **this.x = x + y;** |
| 16 | **this.y = this.y + 200;** |
| 17 | **return x + y;** |
| 18 | **}** |
| 19 | **}** |
| What is the output of the following code sequence?  **Scope q2 = new Scope();**  **q2.met1(); q2.met2();**  **q2.met1();**  **q2.met2();** | |

#### **Task 10**

|  |
| --- |
| **public class FinalT6A{** |
| **public static int temp = 4;** |
| **private int sum;** |
| **private int y = 1;** |
| **public FinalT6A(int x, int p){** |
| **temp+=1;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 3 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(2,1);**  **q1.methodA();**  **q1.methodA();** | **x** | **y** | **sum** |
|  |  |  |
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#### **Task 11**

|  |  |
| --- | --- |
|  | **class msgClass{** |
|  | **public int content;** |
|  | **}** |
|  |  |
|  | **public class Q5{** |
|  | **private int sum;** |
|  | **private int y;** |
|  | **public int x;** |
|  | **public Q5(){** |
|  | **sum = 3;** |
|  | **x = 1;** |
|  | **y = 6;** |
|  | **}** |
|  | **public void methodA(){** |
|  | **int x=1, y=1;** |
|  | **msgClass [] msg = new msgClass[1];** |
|  | **msgClass myMsg = new msgClass();** |
|  | **myMsg.content = this.x;** |
|  | **msg[0] = myMsg;** |
|  | **msg[0].content = this.y + myMsg.content;** |
|  | **this.y = this.y + methodB(msg[0]);** |
|  | **y = methodB(msg[0]) + this.y;** |
|  | **x = y + methodB(msg, msg[0]);** |
|  | **sum = x + y + msg[0].content;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **}** |
|  | **private int methodB(msgClass [] mg2, msgClass mg1){** |
|  | **int x = 1;** |
|  | **y = y + mg2[0].content;** |
|  | **mg2[0].content = y + mg1.content;** |
|  | **x = x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **mg1.content = sum - mg2[0].content ;** |
|  | **System.out.println(this.x + " " + this.y+ " " + sum);** |
|  | **return sum;** |
|  | **}** |
|  | **private int methodB(msgClass mg1){** |
|  | **int x = 1, y = 1;** |
|  | **y = sum + mg1.content;** |
|  | **this.y = y + mg1.content;** |
|  | **x = this.x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **this.x = mg1.content + x + 2;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **return y;** |
|  | **}** |
|  | **}** |

**Write the output of the following code: [Answer on the question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q5 q = new Q5();**  **q.methodA();** | **x** | **y** | **sum** |
|  |  |  |
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|  |  |  |
|  |  |  |

#### **Task 12**

|  |
| --- |
| **public class FinalT6A{** |
| **public int temp = 3;** |
| **private int sum;** |
| **private int y = 2;** |
| **public FinalT6A(int x, int p){** |
| **temp+=3;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 2 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(2,1);**  **q1.methodA();**  **q1.methodA();** | **x** | **y** | **sum** |
|  |  |  |
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#### **Task 13**

|  |  |
| --- | --- |
|  | **class msgClass{** |
|  | **public int content;** |
|  | **}** |
|  |  |
|  | **public class Q5{** |
|  | **private int sum;** |
|  | **private int y;** |
|  | **public int x;** |
|  | **public Q5(){** |
|  | **sum = 8;** |
|  | **x = 2;** |
|  | **y = 4;** |
|  | **}** |
|  | **public void methodA(){** |
|  | **int x=0, y=0;** |
|  | **msgClass [] msg = new msgClass[1];** |
|  | **msgClass myMsg = new msgClass();** |
|  | **myMsg.content = this.x;** |
|  | **msg[0] = myMsg;** |
|  | **msg[0].content = this.y + myMsg.content;** |
|  | **this.y = this.y + methodB(msg[0]);** |
|  | **y = methodB(msg[0]) + this.y;** |
|  | **x = y + methodB(msg, msg[0]);** |
|  | **sum = x + y + msg[0].content;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **}** |
|  | **private int methodB(msgClass [] mg2, msgClass mg1){** |
|  | **int x = 0;** |
|  | **y = y + mg2[0].content;** |
|  | **mg2[0].content = y + mg1.content;** |
|  | **x = x + 30 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **mg1.content = sum - mg2[0].content ;** |
|  | **System.out.println(this.x + " " + this.y+ " " + sum);** |
|  | **return sum;** |
|  | **}** |
|  | **private int methodB(msgClass mg1){** |
|  | **int x = 0, y = 0;** |
|  | **y = sum + mg1.content;** |
|  | **this.y = y + mg1.content;** |
|  | **x = this.x + 30 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **this.x = mg1.content + x + 2;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **return y;** |
|  | **}** |
|  | **}** |

**Write the output of the following code: [Answer on the question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q5 q = new Q5();**  **q.methodA();** | **x** | **y** | **sum** |
|  |  |  |
|  |  |  |
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#### **Task 14**

|  |
| --- |
| **public class FinalT6A{** |
| **public int temp = 1;** |
| **private int sum;** |
| **private int y = 2;** |
| **public FinalT6A(int x, int p){** |
| **temp+=1;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 3 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 4 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence? **[Answer on question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(5,6);**  **q1.methodA();**  **q1.methodA();** | **x** | **y** | **sum** |
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#### **Task 15**

|  |  |
| --- | --- |
|  | **class msgClass{** |
|  | **public int content;** |
|  | **}** |
|  |  |
|  | **public class Q5{** |
|  | **private int sum;** |
|  | **private int y;** |
|  | **public int x;** |
|  | **public Q5(){** |
|  | **sum = 1;** |
|  | **x = 2;** |
|  | **y = 3;** |
|  | **}** |
|  | **public void methodA(){** |
|  | **int x=1, y=1;** |
|  | **msgClass [] msg = new msgClass[1];** |
|  | **msgClass myMsg = new msgClass();** |
|  | **myMsg.content = this.x;** |
|  | **msg[0] = myMsg;** |
|  | **msg[0].content = this.y + myMsg.content;** |
|  | **this.y = this.y + methodB(msg[0]);** |
|  | **y = methodB(msg[0]) + this.y;** |
|  | **x = y + methodB(msg, msg[0]);** |
|  | **sum = x + y + msg[0].content;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **}** |
|  | **private int methodB(msgClass [] mg2, msgClass mg1){** |
|  | **int x = 1;** |
|  | **y = y + mg2[0].content;** |
|  | **mg2[0].content = y + mg1.content;** |
|  | **x = x + 4 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **mg1.content = sum - mg2[0].content ;** |
|  | **System.out.println(this.x + " " + this.y+ " " + sum);** |
|  | **return sum;** |
|  | **}** |
|  | **private int methodB(msgClass mg1){** |
|  | **int x = 5, y = 6;** |
|  | **y = sum + mg1.content;** |
|  | **this.y = y + mg1.content;** |
|  | **x = this.x + 7 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **this.x = mg1.content + x + 8;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **return y;** |
|  | **}** |
|  | **}** |

**Write the output of the following code: [Answer on the question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q5 q = new Q5();**  **q.methodA();** | **x** | **y** | **sum** |
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#### **Task 16**

|  |
| --- |
| **public class FinalT6A{** |
| **public int temp = 3;** |
| **private int sum;** |
| **private int y = 2;** |
| **public FinalT6A(int x, int p){** |
| **temp+=3;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 2 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(3,2);**  **FinalT6A q2 = new FinalT6A(2,3);**  **q1.methodA();**  **q2.methodA();** | **X** | **y** | **sum** |
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#### **Task 17**

|  |
| --- |
| **public class MidQ3A{** |
| **public int sum;** |
| **public int y;** |
| **public void methodA(){** |
| **int x=0, y =0, k = 0;** |
| **int [] msg = new int[1];** |
| **msg[0] = 5;** |
| **while (k < 2){** |
| **y = y + msg[0];** |
| **x = y + methodB(msg, k);;** |
| **sum = x + y + msg[0];** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **k++;** |
| **}** |
| **}** |
| **private int methodB(int [] mg2, int mg1){** |
| **int x = 0;** |
| **y = y + mg2[0];** |
| **x = x + 3 + mg1;** |
| **sum = sum + x + y;** |
| **mg2[0] = y + mg1;** |
| **mg1 = mg1 + x + 2;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return mg1;** |
| **}** |
| **}** |

In the above program show the values that are going to be printed as output if you run the methodA() on an instance of Class **MidQ3A**.

|  |  |  |
| --- | --- | --- |
| **x** | **y** | **sum** |
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#### **Task 18**

|  |
| --- |
| **public class MidQ3B{** |
| **public int sum;** |
| **public int y;** |
| **public void methodA(){** |
| **int x=0, y =0, k = 0;** |
| **int [] msg = new int[1];** |
| **msg[0] = 5;** |
| **while (k < 2){** |
| **y = y + msg[0] + 1;** |
| **x = y + methodB(msg, k);** |
| **sum = x + y + msg[0];** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **k++;** |
| **}** |
| **}** |
| **private int methodB(int [] mg2, int mg1){** |
| **int x = 0;** |
| **y = y + mg2[0];** |
| **x = x + 2 + mg1;** |
| **sum = sum + x + y;** |
| **mg2[0] = y + mg1 -2;** |
| **mg1 = mg1 + x + 1;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return mg1;** |
| **}** |
| **}** |

In the above program show the values that are going to be printed as output if you run the methodA() on an instance of Class **MidQ3B**.

|  |  |  |
| --- | --- | --- |
| **x** | **y** | **sum** |
|  |  |  |
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#### **Task: 19**

|  |
| --- |
| **class A{** |
| **public static int temp = 4;** |
| **public int sum;** |
| **public int y;** |
| **public A(){** |
| **y = temp - 2;** |
| **sum = temp + 1;** |
| **temp-=2;** |
| **}** |
| **public void methodA(int m, int n){** |
| **int x = 0;** |
| **y = y + m + (temp++);** |
| **x = x + 1 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **}** |
| **class B{** |
| **public static int x;** |
| **public int y = 5;** |
| **public int temp = -5;** |
| **public int sum = 2;** |
| **public B(){** |
| **y = temp + 3 ;** |
| **sum = 3 + temp + 2;** |
| **temp-=2;** |
| **}** |
| **public B(B b){** |
| **sum = b.sum;** |
| **x = b.x;** |
| **b.methodB(2,3);** |
| **}** |
| **public void methodA(int m, int n){** |
| **int x = 2;** |
| **y = y + m + (temp++);** |
| **x = x + 5 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodB(int m, int n){** |
| **int y = 0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **methodA(x, y);** |
| **sum = x + y + sum;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **}** |

**Consider the following code:**

|  |  |  |  |
| --- | --- | --- | --- |
| **A a1 = new A();**  **B b1 = new B();**  **B b2 = new B(b1);**  **b1.methodA(1, 2);**  **b2.methodB(3, 2);** | **x** | **y** | **sum** |
|  |  |  |
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#### **Task 20**

|  |
| --- |
| **class A{** |
| **public int temp = 4;** |
| **public int sum;** |
| **public int y;** |
| **public A(){** |
| **y = temp - 2;** |
| **sum = temp + 3;** |
| **temp-=2;** |
| **}** |
| **public void methodA(int m, int n){** |
| **int x = 0;** |
| **y = y + m + (temp++);** |
| **x = x + 2 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **}** |
| **class B extends A {** |
| **public int x;** |
| **public B(){** |
| **y = temp + 3 ;** |
| **sum = 3 + temp + 2;** |
| **temp-=1;** |
| **}** |
| **public B(B b){** |
| **sum = b.sum;** |
| **x = b.x;** |
| **}** |
| **public void methodB(int m, int n){** |
| **int y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **methodA(x, y);** |
| **sum = x + y + sum;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **}** |

**Consider the following code:**

|  |  |  |  |
| --- | --- | --- | --- |
| **A a1 = new A();**  **B b1 = new B();**  **B b2 = new B(b1);**  **a1.methodA(1, 1);**  **b1.methodA(1, 2);**  **b2.methodB(3, 2);** | **x** | **y** | **sum** |
|  |  |  |
|  |  |  |
|  |  |  |

#### **Task 21**

|  |  |
| --- | --- |
| 1 | **class A{** |
| 2 | **public int temp = 4;** |
| 3 | **public int sum = 1;** |
| 4 | **public int y = 2;** |
| 5 | **public A(){** |
| 6 | **y = temp - 2;** |
| 7 | **sum = temp + 3;** |
| 8 | **temp-=2;** |
| 9 | **}** |
| 10 | **public void methodA(int m, int n){** |
| 11 | **int x = 0;** |
| 12 | **y = y + m + (temp++);** |
| 13 | **x = x + 2 + n;** |
| 14 | **sum = sum + x + y;** |
| 15 | **System.out.println(x + " " + y+ " " + sum);** |
| 16 | **}** |
| 17 | **}** |
| 18 | **class B extends A {** |
| 19 | **public int x = 1;** |
| 21 | **public B(){** |
| 22 | **y = temp + 3 ;** |
| 23 | **sum = 3 + temp + 2;** |
| 24 | **temp-=1;** |
| 25 | **}** |
| 26 | **public B(B b){** |
| 27 | **sum = b.sum;** |
| 28 | **x = b.x;** |
| 29 | **}** |
| 30 | **public void methodB(int m, int n){** |
| 31 | **int y =0;** |
| 32 | **y = y + this.y;** |
| 33 | **x = this.y + 2 + temp;** |
| 34 | **methodA(x, y);** |
| 35 | **sum = x + y + super.sum;** |
| 36 | **System.out.println(x + " " + y+ " " + sum);** |
| 37 | **}** |
| 38 | **}** |

**Consider the following code:**

|  |  |  |  |
| --- | --- | --- | --- |
| **A a1 = new A();**  **B b1 = new B();**  **B b2 = new B(b1);**  **a1.methodA(1, 1);**  **b1.methodA(1, 2);**  **b2.methodB(3, 2);** | **x** | **Y** | **sum** |
|  |  |  |
|  |  |  |
|  |  |  |

#### **Task 22**

|  |
| --- |
| **class A{** |
| **public static int temp = 3;** |
| **public int sum;** |
| **public int y;** |
| **public A(){** |
| **y = temp - 1;** |
| **sum = temp + 2;** |
| **temp-=2;** |
| **}** |
| **public void methodA(int m, int [] n){** |
| **int x = 0;** |
| **y = y + m + (temp++);** |
| **x = x + 2 + (++n[0]);** |
| **sum = sum + x + y;** |
| **n[0] = sum + 2;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **}** |
| **class B extends A {** |
| **public static int x = 1;** |
| **public B(){** |
| **y = temp + 1 ;** |
| **x = 3 + temp + x;** |
| **temp-=2;** |
| **}** |
| **public B(B b){** |
| **sum = b.sum + super.sum;** |
| **x = b.x + x;** |
| **}** |
| **public void methodB(int m, int n){** |
| **int [] y = {0};** |
| **super.y = y[0] + this.y + m;** |
| **x = super.y + 2 + temp - n;** |
| **methodA(x, y);** |
| **sum = x + y[0] + super.sum;** |
| **System.out.println(x + " " + y[0]+ " " + sum);** |
| **}** |
| **}** |

**Consider the following code:**

|  |  |  |  |
| --- | --- | --- | --- |
| **int x[] = {23};**  **A a1 = new A();**  **B b1 = new B();**  **B b2 = new B(b1);**  **a1.methodA(1, x);**  **b2.methodB(3, 2);**  **a1.methodA(1, x);** |  |  |  |
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#### **Task 23**

|  |
| --- |
| **public class FinalT6A{** |
| **public static int temp = 4;** |
| **private int sum;** |
| **private int y = 1;** |
| **public FinalT6A(int x, int p){** |
| **temp+=1;** |
| **y = temp - p;** |
| **sum = temp + x;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public void methodA(){** |
| **int x=0, y =0;** |
| **y = y + this.y;** |
| **x = this.y + 2 + temp;** |
| **sum = x + y + methodB(temp, y);** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **}** |
| **public int methodB(int temp, int n){** |
| **int x = 0;** |
| **y = y + (++temp);** |
| **x = x + 3 + n;** |
| **sum = sum + x + y;** |
| **System.out.println(x + " " + y+ " " + sum);** |
| **return sum;** |
| **}** |
| **}** |

What is the output of the following code sequence?

|  |  |  |  |
| --- | --- | --- | --- |
| **FinalT6A q1 = new FinalT6A(2,1);**  **q1.methodA();**  **q1.methodA();** | **x** | **y** | **sum** |
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#### **Task 24**

|  |  |
| --- | --- |
|  | **class msgClass{** |
|  | **public int content;** |
|  | **}** |
|  |  |
|  | **public class Q5{** |
|  | **private int sum;** |
|  | **private int y;** |
|  | **public int x;** |
|  | **public Q5(){** |
|  | **sum = 3;** |
|  | **x = 1;** |
|  | **y = 6;** |
|  | **}** |
|  | **public void methodA(){** |
|  | **int x=1, y=1;** |
|  | **msgClass [] msg = new msgClass[1];** |
|  | **msgClass myMsg = new msgClass();** |
|  | **myMsg.content = this.x;** |
|  | **msg[0] = myMsg;** |
|  | **msg[0].content = this.y + myMsg.content;** |
|  | **this.y = this.y + methodB(msg[0]);** |
|  | **y = methodB(msg[0]) + this.y;** |
|  | **x = y + methodB(msg, msg[0]);** |
|  | **sum = x + y + msg[0].content;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **}** |
|  | **private int methodB(msgClass [] mg2, msgClass mg1){** |
|  | **int x = 1;** |
|  | **y = y + mg2[0].content;** |
|  | **mg2[0].content = y + mg1.content;** |
|  | **x = x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **mg1.content = sum - mg2[0].content ;** |
|  | **System.out.println(this.x + " " + this.y+ " " + sum);** |
|  | **return sum;** |
|  | **}** |
|  | **private int methodB(msgClass mg1){** |
|  | **int x = 1, y = 1;** |
|  | **y = sum + mg1.content;** |
|  | **this.y = y + mg1.content;** |
|  | **x = this.x + 3 + mg1.content;** |
|  | **sum = sum + x + y;** |
|  | **this.x = mg1.content + x + 2;** |
|  | **System.out.println(x + " " + y+ " " + sum);** |
|  | **return y;** |
|  | **}** |
|  | **}** |

**Write the output of the following code: [Answer on the question paper]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q5 q = new Q5();**  **q.methodA();** | **x** | **y** | **sum** |
|  |  |  |