

ITCS107/114 (Computer Programming II)

Midterm Exam Revision

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Question (1): Find the output of the following program:

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A)

```
public class Output {
public class Object {
private int x;
                                                  public static void main(String[] args)
private String name;
private static int y = 0;
                                                  {
                                                    Object A = new Object();
public static void setY(int newY)
    \{ y = newY; \}
                                                    Object B = new Object(40, "One");
public static int getY() { return y; }
                                                    A.output();
public Object( ) {
       x = 0;
                                                    B.output();
       name="No data";
       v++;
                                                    A.setX(30,"Two");
public Object(int newX, String S){
       x=newX;
                                                    B.Update(10);
       name=S;
       y++;
                                                    A.Update("Three");
                                                    Object.setY(10);
public void setX( int newX, String S){
       x=newX;
                                                    A.output();
       name=S:
                                                    B.output();
public int getX() { return x; }
                                                    System.out.println(Object.getY());
public void output( ){
System.out.println(x + "-" + name + "-" + y
                                                 }// end of main
);
 }
                                               } // end of class
public void Update( int value ) { x \neq value; }
public void Update( String S ) { name=S; }
}// end of class
```

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B)

int [] list = new int [4];	Output
list[0]=10; list[1]=15;	
list[2]=30; list[3]=5;	
System.out.println("My list: ");	
for (int x : list)	
{	
if (x>=14){	
x +=5;	
System.out.println(x++);	
}	
else	
System.out.println(x);	
}	

C)

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int [] list = $\{10, 20, 30\};$	Output
int A=0, B=10;	
for (int i=0; i <list.length; i++)<="" td=""><td></td></list.length;>	
{	
if (list[i]>15)	
A++;	
else	
list[i] = B*i;	
}	
System.out.println("A="+A);	
System.out.println("B="+B);	
for(int x:list)	
System.out.println(x);	

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Question (2): Consider the following class to answer this question.

```
public class Item{
private String type;
private double price;
public Item() { type = "None"; price = 0.0; }
public void setItem( String newT, double newP) { type = newT; price = newP; }
public String getType() { return type; }
public double getPrice() { return price; }
}// end of class
```

Write a static method named *lowestPrice* that takes as parameter an array of type Item. The method should output the type of the item with the minimum price.



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Question (3): Consider the following class to answer this question.

```
public class Player {
String name; String team; int scoredGoals;
public Player() { name = "NewName"; team = "NewTeam"; scoredGoals = 0; }
public Player(String n, String t, int sg) { name = n; team = t; scoredGoals = sg; }
public void setPlayer(String n, String t, int sg) { name = n; team = t; scoredGoals = sg; }
public String getName() { return name; }
public String getTeam() { return team; }
public int getScoredGoals() { return scoredGoals; }
}
```

Write a static method named **bestPlayer** that takes as a parameter an array of type *Player* named **list**. The method should find and print the name, number of scored goals, and team name of the player that scored the maximum number of goals.

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Note: assume the list array is declared and populated with data in the main method.

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Question (4): Write a Java program to read 5 integer values into an array named list, then use the array to output the positive values followed by the negative values and ignore zeros.

```
Sample Input/output
Enter 5 numbers: 10 -3 0 -4 9
List:
10
9
-3
-4
```



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Question (5): Write a Java program to do the following:

1- Create an array **list** of integers of size (5).

2- Ask the user to fill this array.

3- Find the smallest number from the list and its duplicate (if any), then output the value of smallest number in the list and last occurrence of the smallest number in the array and displays its location.

Sample Input/output Enter 5 integers: 15 15 50 67 82 The smallest number is : 15 and last index 1

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Question (6):

Part(A) Write the definition of a class named **TaskClass** that include the following private members:

- 1) **list**: an array of type String to hold a names of the tasks,
- 2) count: the current number of tasks in the array list,
- 3) **maxSize**: the maximum size of the **list** array.

Additionally, the class should include the following public methods:

- 1) A constructor with one parameter (**m**) of type integer. The constructor should initialize *count* to zero, set the value of *maxSize* to be as **m**, and create **list** as an array of string of size **maxSize**.
- 2) A method named **addTask** that takes a string (**T**) as parameter. The method should add **T** to the end of the **list** array (if the array is not full)

3) A method named **search** that takes a parameter (T) of type string. The method should return *true* if T exists in the **list** array. Otherwise it should return *false*.

Part (B)

In the main method below:

- Create an object named myTask with maxSize = 10 of type TaskClass defined in Part(A).
- 2. Add "Homework1" and "Homewrok2" to the object myTask.
- 3. Check if "Homework1" exists in myTask and output an appropriate message.



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Question (7): Write a Java program to handle students' marks. In your program, you need to do the following:

- 1- Ask the user to enter number of students.
- 2- Create an array named marks of size n to hold students marks.
- 3- Ask the user to enter students marks and save them in the array marks.
- 4- Calculate and output the average of the marks.
- 5- For each student in the array marks, output if the student has passed or failed. A student has a pass mark is the mark is above or equal average and fail if the mark is below average.

Sample Input/output

```
Enter the number of students (n): 4
please Enter the students mark: 9.5 1.5 3.5 10
The avg is: 6.125
Student(1) with marks 9.5 is PASS
Student(2) with marks 1.5 is FAIL
Student(3) with marks 3.5 is FAIL
Student(4) with marks 10.0 is PASS
```



Question (8): Write a Java program to do the following:

- 1- Create an array list of type integer of size (n).
- 2- Ask the user to fill an array.

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3- Write a Java program to separate even and odd numbers of a given array of integers. Put all even numbers first, then 0's if any, and then odd numbers.

Sample Input/output Enter the array size (n): 10 please fill the array: 0 1 2 3 4 5 6 7 8 9 The array after rearranging: 2 4 6 8 0 1 3 5 7 9

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Question (9): Write Java program to do the following:

- 1- Ask the user to enter an integer (n)
- 2- Create an array of integers of size (n)
- 3- Find the first repeated element in the array. Output the value of the first repeated element and its location. In case no repeated values, output an appropriate message.

Sample Input/output

```
Enter number of elements: 10
Enter values: 1 2 2 4 5 7 4 7 3 3
The first repeated element is 2 Found at index 1.
```

Good Luck

