

## **Worksheet 04**

### **CTEC 22043 Object Oriented Programming**

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### Q 01:

#### Code:

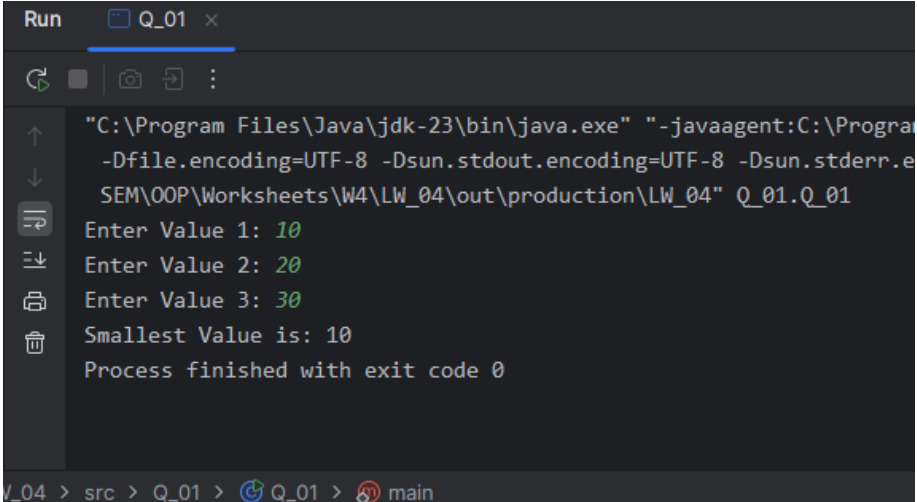
```
package Q_01;

import java.util.Scanner;
public class Q_01 {
    public static void main(String[] args) {
        int x,y,z;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter Value 1: ");
        x = scan.nextInt();
        System.out.print("Enter Value 2: ");
        y = scan.nextInt();
        System.out.print("Enter Value 3: ");
        z = scan.nextInt();
        int min;

        if (x<y){
            if(x<z){
                min = x;
            }
            else{
                min = z;
            }
        }
        else{
            if(y<z){
                min = y;
            }
            else{
                min = z;
            }
        }

        System.out.print("Smallest Value is: "+min);
    }
}
```

#### Output:



```
Run Q_01 x
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Progra
-Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8 -Dsun.stderr.e
SEM\OOP\Worksheets\W4\LW_04\out\production\LW_04" Q_01.Q_01
Enter Value 1: 10
Enter Value 2: 20
Enter Value 3: 30
Smallest Value is: 10
Process finished with exit code 0
/_04 > src > Q_01 > Q_01 > main
```

**Q 02:**

**Code:**

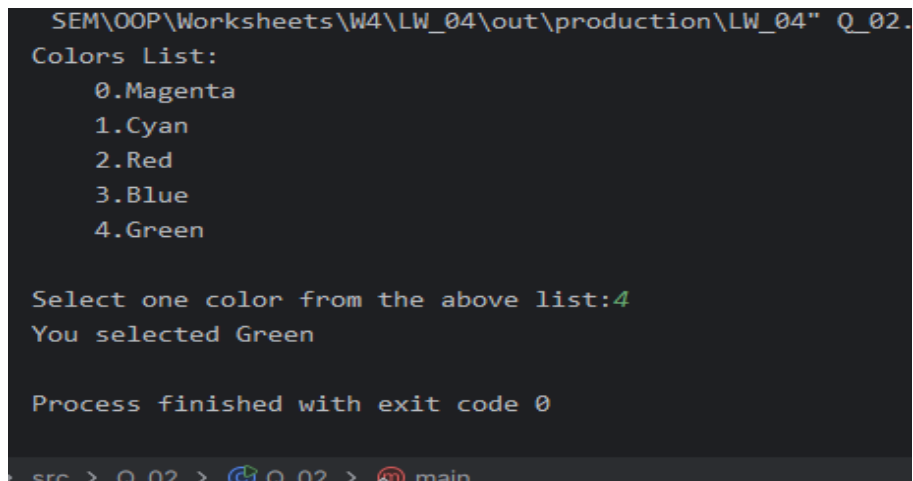
```
package Q_02;

import java.util.Scanner;
public class Q_02 {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Colors List:");
        System.out.println("\t0.Magenta");
        System.out.println("\t1.Cyan");
        System.out.println("\t2.Red");
        System.out.println("\t3.Blue");
        System.out.println("\t4.Green");
        System.out.print("\nSelect one color from the above list:");

        int color = scan.nextInt();
        scan.close();

        switch(color){
            case 0:
                System.out.println("You selected Magenta");
                break;
            case 1:
                System.out.println("You selected Cyan");
                break;
            case 2:
                System.out.println("You selected Red");
                break;
            case 3:
                System.out.println("You selected Blue");
                break;
            case 4:
                System.out.println("You selected Green");
                break;
            default:
                System.out.println("Invalid Color");
                break;
        }
    }
}
```

**Result:**



```
SEM\OOP\Worksheets\W4\LW_04\out\production\LW_04" Q_02.
Colors List:
    0.Magenta
    1.Cyan
    2.Red
    3.Blue
    4.Green

Select one color from the above list:4
You selected Green

Process finished with exit code 0

src > Q_02 > Q_02 > main
```

**Q 03:****Code:**

```
package Q_03;

import java.util.Scanner;

public class Q_03 {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("\nEnter the power of 10th you want to
know what its called: ");
        int power = scan.nextInt();

        switch(power){
            case 6:
                System.out.println("10^6 is called 'Million'");
                break;
            case 9:
                System.out.println("10^9 is called 'Billion'");
                break;
            case 12:
                System.out.println("10^12 is called 'Trillion'");
                break;
            case 15:
                System.out.println("10^15 is called 'Quadrillion'");
                break;
            case 18:
                System.out.println("10^18 is called 'Quintillion'");
                break;
            case 21:
                System.out.println("10^21 is called 'Sextillion'");
                break;
            case 30:
                System.out.println("10^30 is called 'Nonillion'");
                break;
            case 100:
                System.out.println("10^100 is called 'Googol'");
                break;
            default:
                System.out.println("Invalid Input");
                break;
        }
    }
}
```

**Result:**

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Prog
-Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8 -Dsun.stderr
SEM\OOP\Worksheets\W4\LW_04\out\production\LW_04" Q_03.Q_03

Enter the power of 10th you want to know what its called: 6
10^6 is called 'Million'

Process finished with exit code 0
```

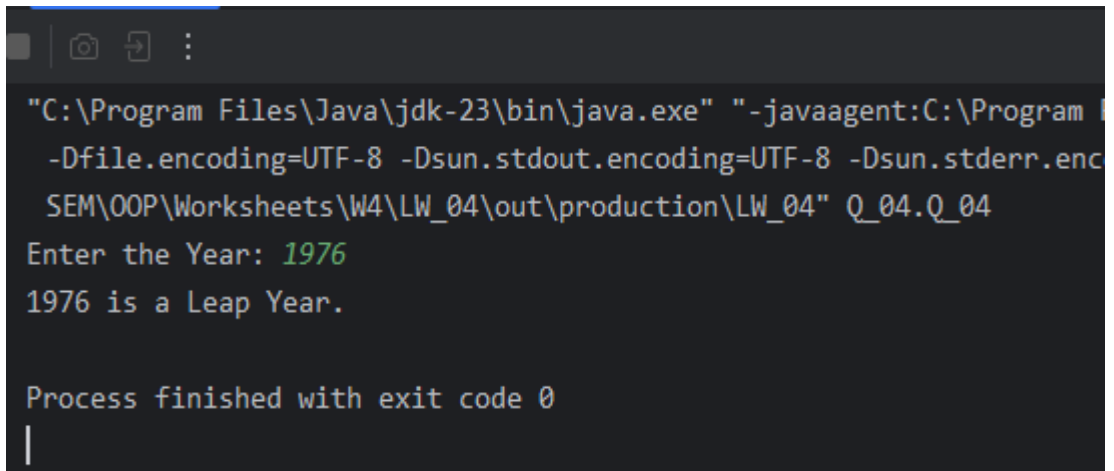
**Q 04:****Code:**

```
package Q_04;

import java.util.Scanner;

public class Q_04 {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter the Year: ");
        int year = scan.nextInt();

        if (year%4 == 0 && year%100 != 0) {
            System.out.println(year + " is a Leap Year.");
        } else {
            if (year%4 == 0 && year%100 == 0 && year%400 == 0) {
                System.out.println(year + " is a Leap Year.");
            } else {
                System.out.println(year + " is not a Leap Year.");
            }
        }
    }
}
```

**Result:**

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program F
-Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8 -Dsun.stderr.enc
SEM\OOP\Worksheets\W4\LW_04\out\production\LW_04" Q_04.Q_04
Enter the Year: 1976
1976 is a Leap Year.

Process finished with exit code 0
|
```

**Q 05:****Code:**

```

package Q_05;

import java.util.*;

public class Q_05 {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);

        String[][] menuItems = {
            {"Tofu Burger", "Cajun Chicken", "Buffalo Wings",
"Rainbow Fillet"},
            {"Rice Cracker", "No-Salt Fries", "Zucchini", "Brown
Rice"},
            {"Cafe Mocha", "Cafe Latte", "Espresso", "Oolong
Tea"}
        };
        double[][] menuPrices = {
            {3.49, 4.59, 3.99, 2.99},
            {0.79, 0.69, 1.09, 0.59},
            {1.99, 1.90, 2.49, 0.99}
        };
        String[] categories = {"Entree", "Side Dish", "Drink"};

        ArrayList<String> orderedItems = new ArrayList<>();
        HashSet<String> selectedItems = new HashSet<>();
        double totalPrice = 0.0;

        int choice;
        do {
            System.out.println("\nMain Menu:");
            for (int i = 0; i < categories.length; i++) {
                System.out.printf("%d.    %s\n",    i    +    1,
categories[i]);
            }
            System.out.println("4. Finish and Show Total");
            System.out.print("Please 'click' the number of your
choice: ");
            choice = scan.nextInt();

            if (choice >= 1 && choice <= 3) {
                totalPrice += selectItems(categories[choice -
1], menuItems[choice - 1], menuPrices[choice - 1], orderedItems,
selectedItems, scan);
            } else if (choice == 4) {
                System.out.println("\nTHANK        YOU        FOR
ORDERING!!");
                System.out.println("Your ordered items:");
                orderedItems.forEach(item                ->
System.out.println("- " + item));
                System.out.printf("Total:                $%.2f\n",
totalPrice);
            } else {
                System.out.println("Invalid choice. Please try
again.");
            }
        }
    }
}

```

```

        } while (choice != 4);
    }

    public static double selectItems(String category, String[]
items, double[] prices,
                                   ArrayList<String> order,
HashSet<String> selectedSet, Scanner scan) {
    double categoryTotal = 0.0;
    int selection;

    do {
        System.out.println("\n" + category + " Menu:");
        for (int i = 0; i < items.length; i++) {
            System.out.printf("%d. %s \t $%.2f%s\n",
                               i + 1, items[i], prices[i],
                               selectedSet.contains(items[i]) ? "
[Already Selected]" : "");
        }
        System.out.println("0. Done with " + category);
        System.out.print("Click item number to select (0 to
stop): ");

        selection = scan.nextInt();

        if (selection >= 1 && selection <= items.length) {
            String selectedItem = items[selection - 1];
            if (selectedSet.add(selectedItem)) {
                order.add(selectedItem + " ($" +
prices[selection - 1] + ")");
                categoryTotal += prices[selection - 1];
                System.out.println("Added: " +
selectedItem);
            } else {
                System.out.println("You've already selected
that item.");
            }
        } else if (selection != 0) {
            System.out.println("Invalid selection.");
        }
    } while (selection != 0);

    return categoryTotal;
}
}

```

Result:

```
Please 'click' the number of your choice: 4

THANK YOU FOR ORDERING!!
Your ordered items:
- Rice Cracker ($0.79)
- No-Salt Fries ($0.69)
- Zucchini ($1.09)
- Brown Rice ($0.59)
- Rainbow Fillet ($2.99)
- Espresso ($2.49)
Total: $8.64

Process finished with exit code 0
```