OOP Lab-02 Tasks

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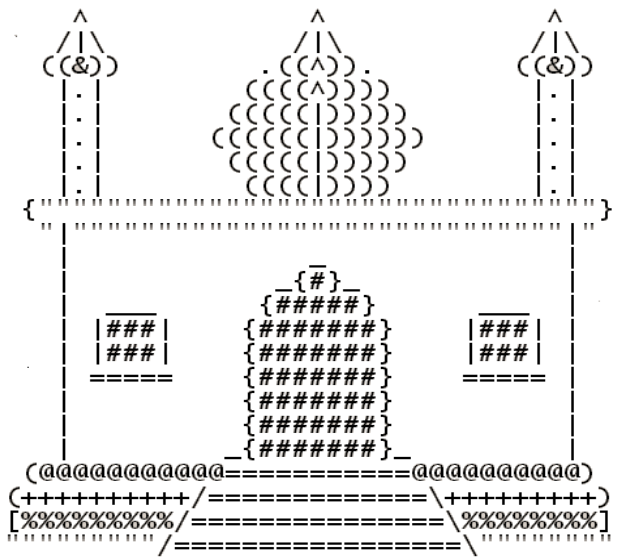
Exercise 1 *(Mosque.java)*

Write a program that prints a mosque, similar to the following:



Code:

```
package com.mycompany.mavenproject1;
public class Mavenproject1 {
public static void main(String[] args) {
        System.out.println("      ^           ^           ^      ");
        System.out.println("     //|\\\        //|\\\        //|\\\     ");
        System.out.println("    (((&)))      .(((^))).      (((&)))    ");
        System.out.println("      |.|         |.|         |.|      ");
        System.out.println("      |.|         |.|         |.|      ");
        System.out.println("      |.|         |.|         |.|      ");
        System.out.println("      |.|         |.|         |.|      ");
        System.out.println("      |.|         |.|         |.|      ");
        System.out.println(" {""""""""""""""""""""""""""""""} ");
        System.out.println("  '||""""""""""""""""""""""""""||'  ");
        System.out.println("   ||                          ||   ");
        System.out.println("   ||              _           ||   ");
        System.out.println("   ||            {#}           ||   ");
        System.out.println("   ||           {#####}          ||   ");
        System.out.println("   ||          {#######}         ||   ");
        System.out.println("   ||          {#######}         ||   ");
        System.out.println("   ||          {#######}         ||   ");
        System.out.println("   ||          {#######}         ||   ");
        System.out.println("   ||         {#######}          ||   ");
        System.out.println("
(@@@@@@@@@@@@@@@@@@==========@@@@@@@@@@@@@@@@@@) ");
```

```
        System.out.println("(++++++++++++//==========\\++++++++++++) ");
        System.out.println("[%%%%%%%%%%%%//==========\\%%%%%%%%%%%%]");
        System.out.println("""""""""//==========\\""""""""");
        System.out.println("          //==========\\          ");
    }
}
```

Output:

```
--- exec:3.1.0:exec (default-cli) @ mavenproject1 ---
        ^               ^               ^
      //|\           //|\           //|\
     (((&)))       .(((^))).       (((&)))
       |.|            |.|            |.|
       |.|            |.|            |.|
       |.|            |.|            |.|
       |.|            |.|            |.|
       |.|            |.|            |.|
  {''''''''''''''''''''''''''''''''''''''''}
   '||''''''''''''''''''''''''''''''''''''||'
     ||                                    ||
     ||                                    ||
     ||                 _                  ||
     ||               {#}                 ||
     ||              {#####}               ||
     ||             {#######}              ||
     ||             {#######}              ||
     ||             {#######}              ||
     ||             {#######}              ||
     ||            {#######}               ||
   (@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@)
  (++++++++++++//==========\++++++++++++)
  [%%%%%%%%%%%%//==========\%%%%%%%%%%%%]
  ''''''''''''//==========\''''''''''''
              //==========\
  ------------------------------------------------------------
  BUILD SUCCESS
  ------------------------------------------------------------
```

Exercise 2 **(Equations.java)**

Wrtite a java program that calculates the following equation. Where x = 6, y = 20, z=13

- $2x^2 + y^2$
- $3x + y -3z^2$
- $2x -2y + 5z^2$

Code:

```
package javaapplication15;
import java.util.Scanner;


public class JavaApplication15 {
    static int equation1(int x, int y){
        return (2*(x*x) + (y*y));
    }
    static int equation2(int x,int y,int z){
        return (3*x + y -3*(z*z));
    }
    static int equation3(int x,int y,int z){
        return (2*x -2*y + 5*(z*z));
    }
public static void main(String[] args) {

            Scanner input = new Scanner(System.in);
            System.out.println("Enter the value of x: ");
        int x = input.nextInt();
        System.out.println("Enter the value of y: ");
        int y = input.nextInt();
        System.out.println("Enter the value of z: ");
        int z = input.nextInt();

        System.out.println(equation1(x,y));
        System.out.println(equation2(x,y,z));
        System.out.println(equation3(x,y,z));
}
}
```

Output:

```
Enter the value of x:
6
Enter the value of y:
20
Enter the value of z:
13
472
-469
- 817
--------------------------------
BUILD SUCCESS
--------------------------------
```

Exercise 3 *(Arithmatic.java)*

Type-in the following example, which receives the input of two integer numbers and compute the sum, difference and product. Compile and run this program.

Code:

```
package javaapplication15;
import java.util.Scanner;


public class JavaApplication15 {
    static int sum(int a,int b){
        return a+b;
    }
     static int sub(int a,int b){
        return a-b;
    }
      static int mul(int a,int b){
        return a*b;
    }
       static int div(int a,int b){
        return a/b;
    }
  public static void main(String[] args) {
         Scanner input = new Scanner(System.in);
```

```
        System.out.println("Enter the value of a:");
        int a = input.nextInt();
        System.out.println("Enter the value of b:");
        int b = input.nextInt();

        System.out.println("Sum of "+a+" "+" and "+b+" is "+sum(a,b));
        System.out.println("Sum of "+a+" "+" and "+b+" is "+sub(a,b));
        System.out.println("Sum of "+a+" "+" and "+b+" is "+mul(a,b));
        System.out.println("Sum of "+a+" "+" and "+b+" is "+div(a,b));
}
}
```

Output:

```
Enter the value of a:
12
Enter the value of b:
3
Sum of 12  and 3 is 15
Sum of 12  and 3 is 9
Sum of 12  and 3 is 36
Sum of 12  and 3 is 4
------------------------------
BUILD SUCCESS
------------------------------
```

Exercise 4 *(Temperature.java)*

Celsius to Fahrenhite temperature: **F**=(**C** × 9/5) + 32

C = temperature in celsius.

F = temperature in fahrenhite

Calculate the temperature for the following degrees

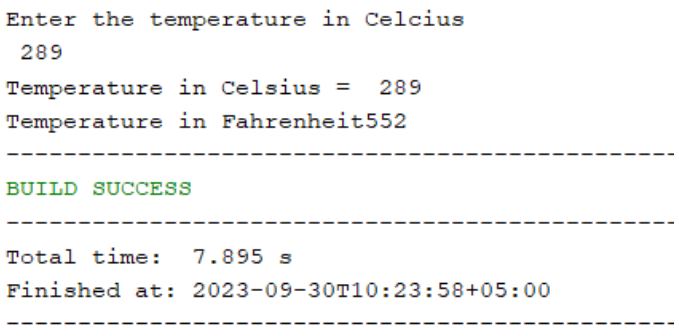
- 289 °C
- 400 °C
- -36 °C
- -180 °C

Code:

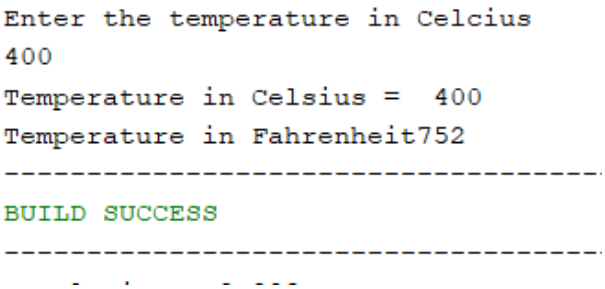
```
package javaapplication15;
import java.util.Scanner;


public class JavaApplication15 {
    static int convertTemp(int C){
        int F = ((C*9/5)+32);
        return F;
    }    public static void main(String[] args) {
        Scanner temp = new Scanner(System.in);
        System.out.println("Enter the temperature in Celcius");
        int tempInC = temp.nextInt();
        System.out.println("Temperature in Celsius =  "+tempInC);
        System.out.println("Temperature in Fahrenheit"+convertTemp(tempInC));
        }
}
```

Output (for 289C):



Output (for 400C):



Output (for-36C):

```
Enter the temperature in Celcius
-36
Temperature in Celsius =  -36
Temperature in Fahrenheit-32
---------------------------------
BUILD SUCCESS
---------------------------------
Total time:  4.732 s
```

Output (for-180C):

```
Enter the temperature in Celcius
-180
Temperature in Celsius =  -180
Temperature in Fahrenheit-292
---------------------------------
BUILD SUCCESS
---------------------------------
Total time:  5.025 s
```

Exercise 5 *(Cookies.java)*

There are 12 cookies per box (sold at $1.14) and 24 boxes per carton. Left over boxes are sold for 57¢. Remaining cookies are given away free. Given the number of cookies produced, determine the number of boxes, cartons, left over boxes and the total money made.

Code:

```
package com.mycompany.task05;
import java.util.Scanner;

public class Task05 {

    public static void main(String[] args) {



        Scanner sc =  new Scanner (System.in);
        System.out.println("Enter number of cookies produced");
        int numbers = sc.nextInt();

        int boxes=numbers/12;

        System.out.println("no of boxes = "+boxes);
        int cartons = boxes/24;

    System.out.println("Number of cartoons : "+cartons);
```

```
        int leftover = cartons%24;
        System.out.println("Number of leftovers:"+leftover);
        double totalmoney = (cartons*1.14);
        double leftovermoney = (leftover * 57);
        System.out.println("Totalmoney : "+totalmoney);
        System.out.println("leftover : "+leftover);
        System.out.println("Leftover money: " + leftovermoney);




    }

}
```

Output:

```
Enter number of cookies produced
2000
no of boxes = 166
Number of cartoons : 6
Number of leftovers:6
Totalmoney : 6.84
leftover : 6
Leftover money: 342.0
------------------------------
BUILD SUCCESS
------------------------------
```

Exercise 6 *(PullyFormulas.java)*

Pulley formulas

a) calculate the speed of one pulley if there are 2 pulleys connected with a belt:
   RPM2 = diameter1/diameter2 * RPM1

b) calculate the amount of weight that can be lifted with a multiple pulley system:
   weight lifted = force exerted * number of up ropes

Code:

```
package javaapplication15;
import java.util.Scanner;


public class JavaApplication15 {




    static int rpm2(int rpm1,int diameter1, int diameter2){
        int rpm2 = (diameter1/diameter2 )* rpm1;
        return rpm2;
    }
    static int weightLifted(int forceExerted, int ropes){
        return forceExerted * ropes;
    }
    public static void main(String[] args) {




        Scanner input = new Scanner(System.in);
        System.out.println("Ente diameter 1 : ");
        int diameter1 = input.nextInt();
         System.out.println("Ente diameter 2 : ");
        int diameter2 = input.nextInt();
         System.out.println("Ente RPM 1 : ");
        int rpm1 = input.nextInt();


        System.out.println("The Speed of pulley(RPM2) = "+rpm2(rpm1,diameter1,diameter2));
        System.out.println("Enter the Force Exerted : ");
        int forceExerted = input.nextInt();
          System.out.println("Enter the number of  up ropes: ");
        int ropes = input.nextInt();

        System.out.println("The Amount of lifted weight  = "+weightLifted(forceExerted,ropes));
```

```
    }

}
```

Output:

```
Ente diameter 1 :
20
Ente diameter 2 :
10
Ente RPM 1 :
333
The Speed of pulley(RPM2) = 666
Enter the Force Exerted :
120
Enter the number of  up ropes:
30
The Amount of lifted weight  = 3600
------------------------------------------------
BUILD SUCCESS
------------------------------------------------
```