Assignments

1. Accept a char input from the user and display it on the console.

Code of the program & screenshot of the output.

2. Accept two inputs from the user and output its sum.

Variable	**Data Type**
Number 1	Integer
Number 2	Float
Sum	Float

Code of the program & screenshot of the output.

3. Write a program to find the simple interest.

    a. The program should accept 3 inputs from the user and calculate simple interest for the given inputs. Formula: SI=(P*R*n)/100)

Variable	**Data Type**

Principal amount (P)	Integer
Interest rate (R)	Float
Number of years (n)	Float
Simple Interest (SI)	Float

Code of the program & screenshot of the output.

4. Write a program to check whether a student has passed or failed in a subject after he or she enters their mark (pass mark for a subject is 50 out of 100).
   a. The program should accept input from the user and output a message as "Passed" or "Failed."

Variable	**Data type**
mark	float

Code of the program & screenshot of the output.

5. Write a program to show the grade obtained by a student after they enter their total mark percentage.
   a. The program should accept input from the user and display their grade as follows

Mark	**Grade**
> 90	A
80-89	B
70-79	C
60-69	D
50-59	E
< 50	Failed

Variable	**Data type**
Total mark	float

Code of the program & screenshot of the output.

6. Using the 'switch case,' write a program to accept an input number from the user and output the day as follows.

Input	Output
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday
Any other input	Invalid Entry

Code of the program & screenshot of the output.

7. Write a program to print the multiplication table of given numbers.
    a. Accept input from the user and display its multiplication table

        E.g.:

        Output: Enter a number

        Input: 5

        Output:

        1 x 5 = 5

2 x 5 = 10

3 x 5 = 15

4 x 5 = 20

5 x 5 = 25

6 x 5 = 30

7 x 5 = 35

8 x 5 = 40

9 x 5 = 45

10 x 5 = 50

Code of the program & screenshot of the output.

8. Write a program to find the sum of all the odd numbers for a given limit
    a. Program should accept an input as limit from the user and display the sum of all the odd numbers within that limit

    For example if the input limit is 10 then the result is 1+3+5+7+9 = 25

    Output: Enter a limit

    Input: 10

    Output: Sum of odd numbers = 25

Code of the program & screenshot of the output.

9. Write a program to print the following pattern (**hint**: use nested loop)

    1

    1 2

    1 2 3

    1 2 3 4

    1 2 3 4 5

Code of the program & screenshot of the output.

10. Write a program to interchange the values of two arrays.
    a. Program should accept an array from the user, swap the values of two arrays and display it on the console

        Eg: **Output**: Enter the size of arrays

        Input: 5

        Output: Enter the values of Array 1

        Input: 10, 20, 30, 40, 50

        Output: Enter the values of Array 2

        Input: 15, 25, 35, 45, 55

        Output: Arrays after swapping:

        Array1: 15, 25, 35, 45, 55

        Array2: 10, 20, 30, 40, 50

Code of the program & screenshot of the output.

11. Write a program to find the number of even numbers in an array
    a. The program should accept an array and display the number of even numbers contained in that array

       E.g.: **Output**: Enter the size of an array

       Input: 5

       Output: Enter the values of array

       Input: 11, 20, 34, 50, 33

       Output: Number of even numbers in the given array is 3

Code of the program & screenshot of the output.

12. Write a program to sort an array in descending order
    a. Program should accept and array, sort the array values in descending order and display it

       Eg: **Output**: Enter the size of an array

       Input: 5

       Output: Enter the values of array

       Input: 20, 10, 50, 30, 40

       Output: Sorted array:

       50, 40, 30, 20, 10

Code of the program & screenshot of the output.

13. Write a program to identify whether a string is a palindrome or not

a. A string is a palindrome if it reads the same backward or forward eg: MALAYALAM

   Program should accept a string and display whether the string is a palindrome or not

   Eg: **Output**: Enter a string

   Input: MALAYALAM

   Output: Entered string is a palindrome

   Eg 2: **Output**: Enter a string

   Input: HELLO

   Output: Entered string is not a palindrome

Code of the program & screenshot of the output.

14. Write a program to add to two dimensional arrays

a. Program should accept two 2D arrays and display its sum

   Eg: **Output**: Enter the size of arrays

   Input: 3

   Output: Enter the values of array 1

   Input:

   1 2 3

   4 5 6

   7 8 9

Output: Enter the values of array 2

Input:

10 20 30

40 50 60

70 80 90

Output: Sum of 2 arrays is:

11 22 33

44 55 66

77 88 99

Code of the program & screenshot of the output.

15. Write a program to accept an array and display it on the console using functions
    a. Program should contain 3 functions including main() function

main()

1. Declare an array
2. Call function getArray()
3. Call function displayArray()

getArray()

1. Get values to the array

displayArray()

1. Display the array values

Code of the program & screenshot of the output.

16. Write a java program to check whether a given number is prime or not
    a. Program should accept an input from the user and display whether the number is prime or not

       Eg: **Output**: Enter a number

       Input: 7

       Output: Entered number is a Prime number

Code of the program & screenshot of the output.

17. Write a menu driven java program to do the basic mathematical operations such as addition, subtraction, multiplication and division (**hint**: use if else ladder or switch)
    a. Program should have 4 functions named addition(), subtraction(), multiplication() and division()
    b. Should create a class object and call the appropriate function as user prefers in the main function

Code of the program & screenshot of the output.

18. Grades are computed using a weighted average. Suppose that the written test counts 70%, lab exams 20% and assignments 10%.

    If Arun has a score of

    Written test = 81

    Lab exams = 68

    Assignments = 92

Arun's overall grade = (81x70)/100 + (68x20)/100 + (92x10)/100 = 79.5

Write a program to find the grade of a student during his academic year.

a. Program should accept the scores for written test, lab exams and assignments
b. Output the grade of a student (using weighted average)

Eg:

Enter the marks scored by the students

Written test = 55

Lab exams = 73

Assignments = 87

Grade of the student is 61.8

Code of the program & screenshot of the output.

19. Income tax is calculated as per the following table

Annual Income	**Tax percentage**
Up to 2.5 Lakhs	No Tax
Above 2.5 Lakhs to 5 Lakhs	5%
Above 5 Lakhs to 10 Lakhs	20%
Above 10 Lakhs to 50 Lakhs	30%

Write a program to find out the income tax amount of a person.

a. Program should accept annual income of a person
   Output the amount of tax he has to pay

   Eg 1:
   Enter the annual income
   495000
   Income tax amount = 24750.00

   Eg 2:
   Enter the annual income
   500000
   Income tax amount = 25000.00

Code of the program & screenshot of the output.

20. Write a program to print the following pattern using for loop

1

2 3

4 5 6

7 8 9 10

Code of the program & screenshot of the output.

21. Write a program to multiply the adjacent values of an array and store it in an another array
    a. Program should accept an array
    b. Multiply the adjacent values

c. Store the result into another array

Eg:

Enter the array limit

5

Enter the values of array

1 2 3 4 5

Output

2 6 12 20

Code of the program & screenshot of the output.

22. Write a program to add the values of two 2D arrays

a. Program should contains 3 functions including the main function

main()

1. Call function getArray()
2. Call function addArray()
3. Call function displayArray()

getArray()

1. Get values to the array

getArray()

1. Add array 1 and array 2

displayArray()

1. Display the array values

Eg:

Enter the size of array

2

Enter the values of array 1

1 2

3 4

Enter the values of array 2

5 6

7 8

Output:

Sum of array 1 and array 2:

6 8

10 12

Code of the program & screenshot of the output

23. Write an object oriented program in java to store and display the values of a 2D array
    a. Program should contains 3 functions including the main function

    main()

1. Declare an array
2. Call function getArray()
3. Call function displayArray()

getArray()

1. Get values to the array

displayArray()

1. Display the array values

Eg:

Enter the size of array

3

Enter the array values

1 2 3

4 5 6

7 8 9

Array elements are:

1 2 3

4 5 6

7 8 9

Code of the program & screenshot of the output

24. Write a menu driven program in java to calculate the area of a given object.

a. Program should contain two classes
    i. Class 1: MyClass
    ii. Class 2: Area
b. Class MyClass should inherit class Area and should contain the following functions
    i. main()
    ii. circle()
    iii. square()
    iv. rectangle()
    v. triangle()
c. Class Area should contain the following functions to calculate the area of different objects
    i. circle()
    ii. square()
    iii. rectangle()
    iv. triangle()

```
Class MyClass extends Area{

    public static void main(string args[]){

    }

    circle() {

    }

    square() {

    }
```

```
        rectangle() {

        }

        triangle() {

        }

}

Class Area{

        circle(){

        }

        square(){

        }

        rectangle() {

        }

        triangle() {

        }

}
```

Eg 1:

Enter your choice

1. Circle

2. Square
3. Rectangle
4. Triangle

2

Enter the length

2

Output

Area of the square is: 4

Eg 2:

Enter your choice

1. Circle
2. Square
3. Rectangle
4. Triangle

1

Enter the radius

3

Output

Area of the circle is: 28.26

Code of the program & screenshot of the output
25. Write a program to skip two elements after the occurrence of an odd number and print the array elements in the following pattern *
Code of the program & screenshot of the output