**Assignment – 01**

**1) Swap two numbers using temporary variable.**

#include<stdio.h>

int main() {

double first, second, temp;

printf("Enter first number: ");

scanf("%lf", &first);

printf("Enter second number: ");

scanf("%lf", &second);

// value of first is assigned to temp

temp = first;

// value of second is assigned to first

first = second;

// value of temp (initial value of first) is assigned to second

second = temp;

// %.2lf displays number up to 2 decimal points

printf("\nAfter swapping, first number = %.2lf\n", first);

printf("After swapping, second number = %.2lf", second);

return 0;

}

**Output:**

--Before swap-- First number = 1.2 Second number = 2.45 --After swap--

First number = 2.45 Second number = 1.2

**2) Swap two numbers without using temporary variable**

#include <stdio.h>

int main() {

double a, b;

printf("Enter a: ");

scanf("%lf", &a);

printf("Enter b: ");

scanf("%lf", &b);

// swapping

// a = (initial\_a - initial\_b)

a = a - b;

// b = (initial\_a - initial\_b) + initial\_b = initial\_a

b = a + b;

// a = initial\_a - (initial\_a - initial\_b) = initial\_b

a = b - a;

// %.2lf displays numbers up to 2 decimal places

printf("After swapping, a = %.2lf\n", a);

printf("After swapping, b = %.2lf", b);

return 0;

}

**Output:**

--Before swap-- First number = 12.0 Second number = 24.5 --After swap--

First number = 24.5 Second number = 12.0

**3) Check whether a number is even or odd using ternary operator**

import java.util.Scanner;

public class EvenOdd {

public static void main(String[] args) {

Scanner reader = new Scanner(System.in);

System.out.print("Enter a number: ");

int num = reader.nextInt();

if(num % 2 == 0)

System.out.println(num + " is even");

else

System.out.println(num + " is odd");

}

}

**Output:**

Enter a number: 13

13 is odd

**4) Check whether an alphabet is vowel or consonant using if..else statement**

// C Program to Check Whether a Character is Vowel or Consonant

#include <stdio.h>

int main()

{

char ch;

int lowercase\_Vowel, uppercase\_Vowel;

printf("Please Enter an alphabet: \n");

scanf(" %c", &ch);

lowercase\_Vowel = (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u');

uppercase\_Vowel = (ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U');

if (lowercase\_Vowel || uppercase\_Vowel) {

printf("\n %c is a VOWEL.", ch);

}

else {

printf("\n %c is a CONSONANT.", ch);

}

return 0;

}

**Output:**

Enter a character : i

i is vowel

**5) Check whether an alphabet is vowel or consonant using switch statement**

#include <stdio.h>

int main()

{

char ch;

/\* Input an alphabet from user \*/

printf("Enter any alphabet: ");

scanf("%c", &ch);

/\* Switch value of ch \*/

switch(ch)

{

case 'a':

printf("Vowel");

break;

case 'e':

printf("Vowel");

break;

case 'i':

printf("Vowel");

break;

case 'o':

printf("Vowel");

break;

case 'u':

printf("Vowel");

break;

case 'A':

printf("Vowel");

break;

case 'E':

printf("Vowel");

break;

case 'I':

printf("Vowel");

break;

case 'O':

printf("Vowel");

break;

case 'U':

printf("Vowel");

break;

default:

printf("Consonant");

}

return 0;

}

**Output:**

Enter a character : i  i is vowel

**6) Find Largest Among three numbers using if..else statement**

#include <stdio.h>

int main() {

double n1, n2, n3;

printf("Enter three different numbers: ");

scanf("%lf %lf %lf", &n1, &n2, &n3);

// if n1 is greater than both n2 and n3, n1 is the largest

if (n1 >= n2 && n1 >= n3)

printf("%.2f is the largest number.", n1);

// if n2 is greater than both n1 and n3, n2 is the largest

if (n2 >= n1 && n2 >= n3)

printf("%.2f is the largest number.", n2);

// if n3 is greater than both n1 and n2, n3 is the largest

if (n3 >= n1 && n3 >= n2)

printf("%.2f is the largest number.", n3);

return 0;

}

**Output:**

Enter Number 1 : 1.2 Enter Number 2 : 1.8 Enter Number 3 : 3.9 3.9 is the largest number.

**7) Find the largest number among three using nested if..else statement**

public class Largest {

public static void main(String[] args) {

double n1 = -4.5, n2 = 3.9, n3 = 2.5;

if( n1 >= n2 && n1 >= n3)

System.out.println(n1 + " is the largest number.");

else if (n2 >= n1 && n2 >= n3)

System.out.println(n2 + " is the largest number.");

else

System.out.println(n3 + " is the largest number.");

}

}

**Output:**

Enter Number 1 : 1.2Enter Number 2 : 1.8Enter Number 3 : 3.93.9 is the largest number.

**8) Java Program to Find Roots of a Quadratic Equation**

public class Main {

public static void main(String[] args) {

// value a, b, and c

double a = 2.3, b = 4, c = 5.6;

double root1, root2;

// calculate the determinant (b2 - 4ac)

double determinant = b \* b - 4 \* a \* c;

// check if determinant is greater than 0

if (determinant > 0) {

// two real and distinct roots

root1 = (-b + Math.sqrt(determinant)) / (2 \* a);

root2 = (-b - Math.sqrt(determinant)) / (2 \* a);

System.out.format("root1 = %.2f and root2 = %.2f", root1, root2);

}

// check if determinant is equal to 0

else if (determinant == 0) {

// two real and equal roots

// determinant is equal to 0

// so -b + 0 == -b

root1 = root2 = -b / (2 \* a);

System.out.format("root1 = root2 = %.2f;", root1);

}

// if determinant is less than zero

else {

// roots are complex number and distinct

double real = -b / (2 \* a);

double imaginary = Math.sqrt(-determinant) / (2 \* a);

System.out.format("root1 = %.2f+%.2fi", real, imaginary);

System.out.format("\nroot2 = %.2f-%.2fi", real, imaginary);

}

}

}

**Output:**

Enter Value of A : 2.3Enter Value of B : 4Enter Value of C : 5.6root1 = -0.87+1.30i and root2 = -0.87-1.30i

**9) Check if a Number is Positive or Negative using if else**

#include <stdio.h>

#include <stdio.h>

void main()

{

int num;

printf("Input a number :");

scanf("%d", &num);

if (num >= 0)

printf("%d is a positive number \n", num);

else

printf("%d is a negative number \n", num);

}

**Output:**

Enter a Number : 12.312.3 is a positive number

**10) Java Program to Check Alphabet using if else**

public class Alphabet {

public static void main(String[] args) {

char c = '\*';

if( (c >= 'a' && c <= 'z') || (c >= 'A' && c <= 'Z'))

System.out.println(c + " is an alphabet.");

else

System.out.println(c + " is not an alphabet.");

}

}

**Output:**

Enter a character : \*\* is not an alphabet

Enter a character : aa is an alphabet