Institute of technology of Cambodia

Department of Information and communication Engineering

TP4-Decision marking

TP: Algorithm and Programming

Lecturer: BOU CHANNA

Student: VEN THON

ID: e20191250

Group: I3-GIC-C

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Problem1: Write a C program to get a number from a user.

The program check and tell whether this input number is positive or negative number.

---- > >=

A

Start here | P1.c | *P2.c | P3.c

```c
#include<stdio.h>

main()
{
    float a;

    printf("Enter number of a: ");
    scanf("%f",&a);

    if(a>0){
        printf("The number is positve \n");
    }
    else{
        printf("The number is nagativ \n");
    }
}
```

```
"C:\Code C program\P1.exe"
Enter number of a: -7
The number is nagativ

Process returned 0 (0x0)   execution time : 5.114 s
Press any key to continue.
```

a

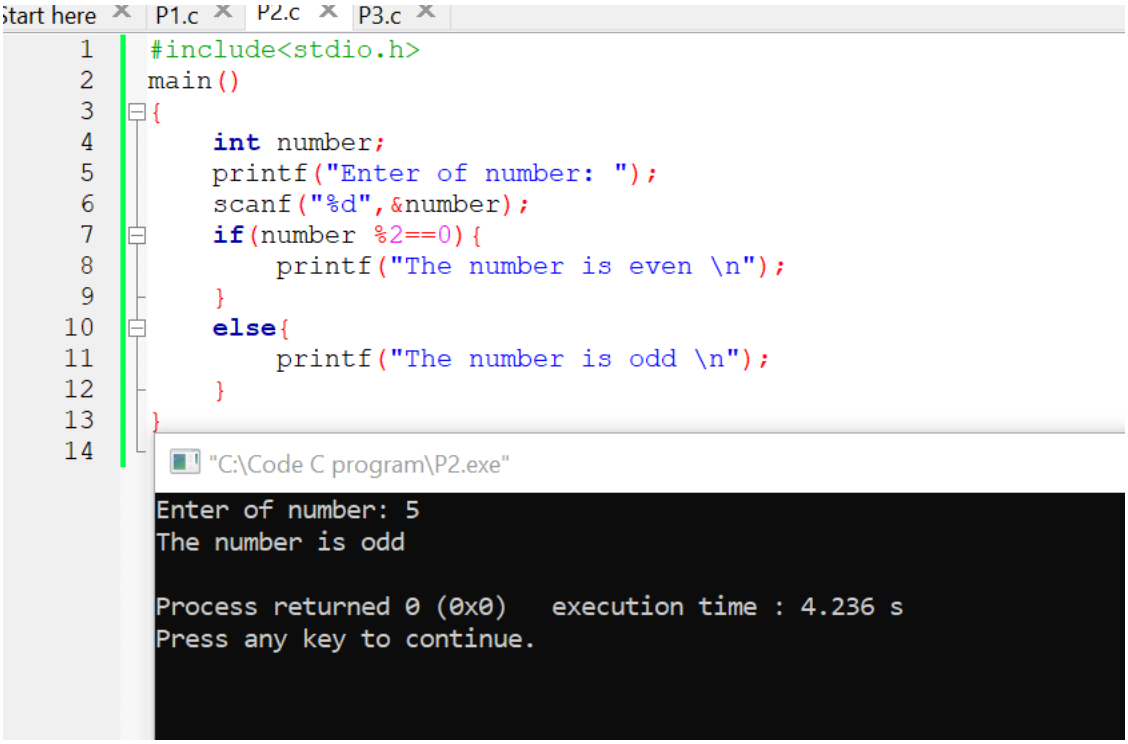
P1.c

```c
#include<stdio.h>

main()
{
    float a;

    printf("Enter number of a: ");
    scanf("%f",&a);

    if(a>0){
        printf("The number is positve \n");
    }
    else{
        printf("The number is nagativ \n");
    }
}
```

```
C:\Code C program\P1.exe
Enter number of a: 8
The number is positve

--------------------------------
Process exited after 6.155 seconds with return value 0
Press any key to continue . . .
```

Problem2- Write a C program to get a number from a user. The program check and tell whether this input number is even or odd number.

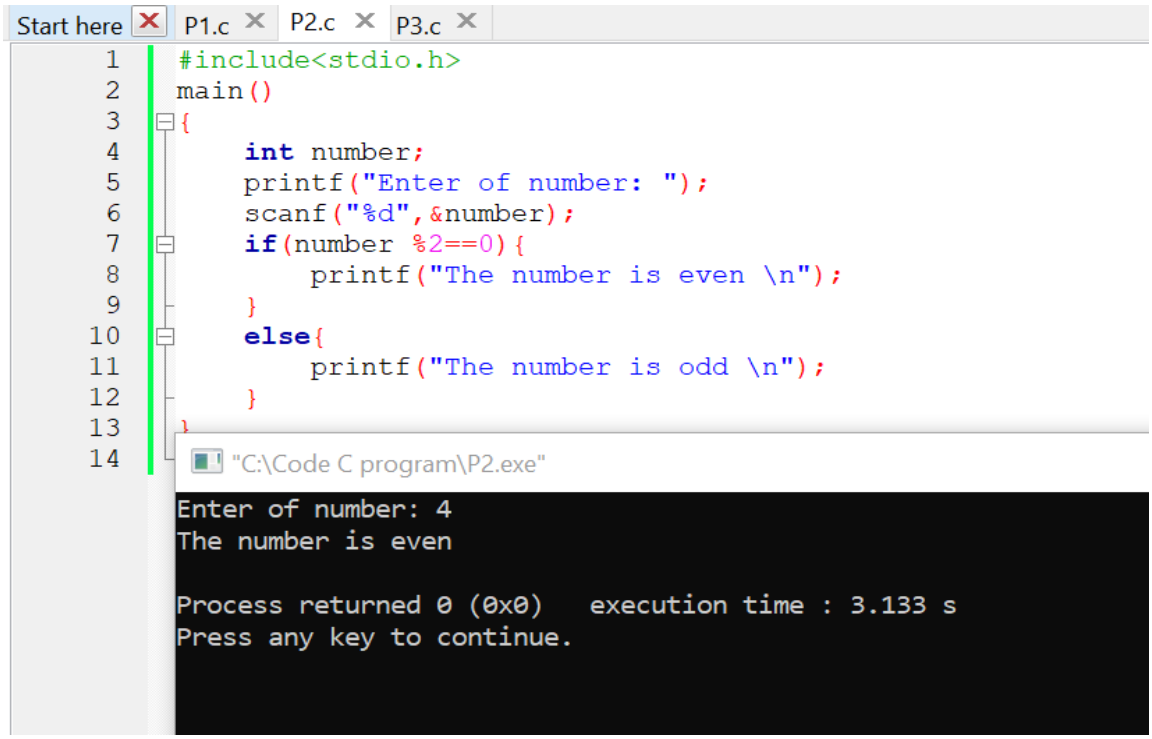
---- % ==



```c
#include<stdio.h>
main()
{
    int number;
    printf("Enter of number: ");
    scanf("%d",&number);
    if(number %2==0){
        printf("The number is even \n");
    }
    else{
        printf("The number is odd \n");
    }
}
```

```
"C:\Code C program\P2.exe"
Enter of number: 5
The number is odd

Process returned 0 (0x0)   execution time : 4.236 s
Press any key to continue.
```

a



```c
#include<stdio.h>
main()
{
    int number;
    printf("Enter of number: ");
    scanf("%d",&number);
    if(number %2==0){
        printf("The number is even \n");
    }
    else{
        printf("The number is odd \n");
    }
}
```

```
"C:\Code C program\P2.exe"
Enter of number: 4
The number is even

Process returned 0 (0x0)   execution time : 3.133 s
Press any key to continue.
```

Problem3- Write a C program to ask a user for 7 numbers

(7 variables).

Find the minimum number and display on screen.

E.g

Input n1: 2

Input n2: 99

Input n3: 1

Input n4: 2

Input n5: 9

Input n6: -7

Input n7: 5

=> Output: The minimum number is –7

A

Start here | P1.c | P2.c | P3.c

```c
#include<stdio.h>
main()
{

    float n1,n2,n3,n4,n5,n6,n7,min;
    printf("Enter of n1: ");scanf("%f",&n1);
    printf("Enter of n2: ");scanf("%f",&n2);
    printf("Enter of n3: ");scanf("%f",&n3);
    printf("Enter of n4: ");scanf("%f",&n4);
    printf("Enter of n5: ");scanf("%f",&n5);
    printf("Enter of n6: ");scanf("%f",&n6);
    printf("Enter of n7: ");scanf("%f",&n7);

    min=n1;
    if(n2<min){
        min=n2;
    }if(n3<min){
        min=n3;
    }if(n4<min){
        min=n4;
    }if(n5<min){
        min=n5;
    }if(n6<min){
        min=n6;
    }if(n7<min){
        min=n7;
    }
    printf("The minimum is %f",min);
}
```

"C:\Code C program\P3.exe"

```
Enter of n1: 2
Enter of n2: 99
Enter of n3: 1
Enter of n4: 2
Enter of n5: 9
Enter of n6: -9
Enter of n7: 6
The minimum is -9.000000
Process returned 0 (0x0)   execution time : 34.974 s
Press any key to continue.
```

Problem4- Write a C program to solve the quadratic equation ax^2+bx+c=0.

Ask a user to inputs the coefficient a, b and c. The program calculate delta and find roots of the equation.

Display the result (roots of the equation) on screen.

E.g:

Input a: 1

Input b: 4

Input c: 3

=> Output: The equation has roots: x1=-1 and x2=-3

Remark: Make sure you verify the result from program whether it is correct if we do it manually by hand.

a

Start here | P5.c

```c

#include<stdio.h>
#include<math.h>

main()
{
    int a,b,c;
    float x1,x2,delta,c1,c2;

    printf("Value of a: ");scanf("%d",&a);
    printf("Value of b: ");scanf("%d",&b);
    printf("Value of c: ");scanf("%d",&c);

    delta = b*b - 4*a*c;
    if(delta==0){
        x1 = (float) -b/(2*a);
        x2 = x1;
        printf("It has double roots x1=x2=%.2f\n",x1);
    }
    else if(delta>0){
        x1 = (-b + sqrt(delta))/(2*a);
        x2 = (-b - sqrt(delta))/(2*a);
        printf(" the equation has two roots: x1=%.2f,x2=%.2f\n",x1,x2);
    }
    else if(delta<0){
        c1 = (float)-b/(2*a);
        c2 = sqrt(-delta)/(2*a);
        printf("equation has two root as complex number.");
        printf("x1=%f.2f + %.2fi",c1,c2);
        printf("x1=%f.2f - %.2fi",c1,c2);
    }

```

```
"C:\Code C program\P5.exe"
Value of a: 1
Value of b: 4
Value of c: 3
 the equation has two roots: x1=-1.00,x2=-3.00

Process returned 0 (0x0)   execution time : 8.910 s
Press any key to continue.
```

Problem5- Write a C program to tell how much tax a person should pay based on his/her salary and gender. The program ask a user for gender, name, and salary (US dollar). The tax is based on the following rules:
-pay tax 10%, for male and salary is more than 300 USD.
-pay tax 5%, for male and salary is in between 200USD and 300 USD.
-pay tax 5%, for female and salary is more than 300 USD.
-pay tax 3%, for female and salary is in between 250 USD and 300USD.
-Otherwise, no need to pay tax.

gender=='M'
gender=="Male" if(strcmp(gender,"Male")==0)

E.g:
Input gender: F
Input name: Dara
Input salary (USD): 280
=> Output:
Hi Dara, based on your given information, the tax salary that you need to pay is: 8.4 USD.
Final salary to received is: 280 - 8.4 = 271.6 $