Day2 : Conditional Statements (4-8-2025)

1. Write a program to check if a number is positive, negative, or zero.

IPO:

Input: variable a.

Process: if a is greater than 0 it is positive.

if a is lesser than 0 it is negative.

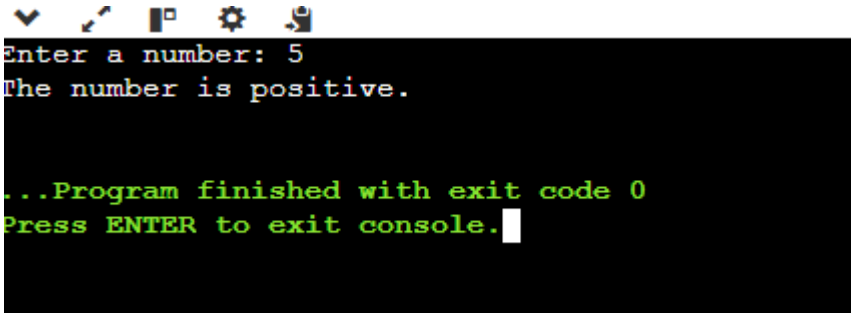
if a is zero then It is zero.

Output: given number is positive or negative or zero.

Code:

```
#include <stdio.h>
Void main()
{
   int n;
   printf("Enter a number: ");
   scanf("%d",&n);
   if (n>0)
   {
      printf("The number is positive.\n");
   }
   else if (n<0)
   {
      printf("The number is negative.\n");
   }
   else
   {
      printf("The number is zero.\n");
```

```
    }
}
```



2. Write a program to find the largest among three numbers.

IPO:

Input: taking three variables a,b,c.

Process: if a>b and a>c the a is largest.

if b>c then b is largest.

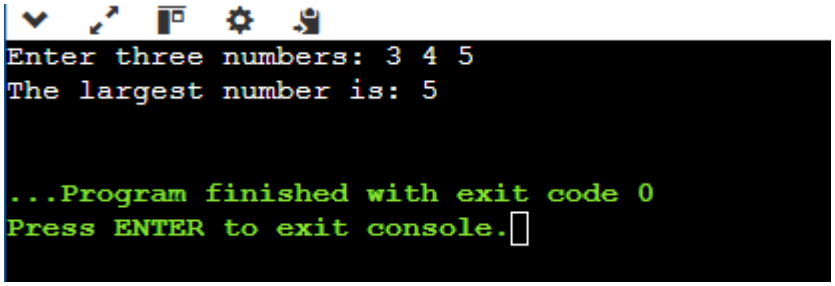
Else c is largest.

Output: largest number among three numbers is a or b or c.

Code:

```
#include <stdio.h>
Void main()
{
   int a,b,c;
   printf("Enter three numbers:");
   scanf("%d %d %d",&a,&b,&c);
   if (a>=b && a>=c)
   {
      printf("The largest number is: %d\n",a);
   }
   else if (b>c)
   {
```

```
        printf("The largest number is: %d\n",b);
    }
    else
    {
        printf("The largest number is: %d\n",c);
    }
}
```



3. Write a program to check if a year is a leap year.

IPO:

Input: taking a variable x.

Process: if a modules 4 is equal to 0 then the year is leap year.

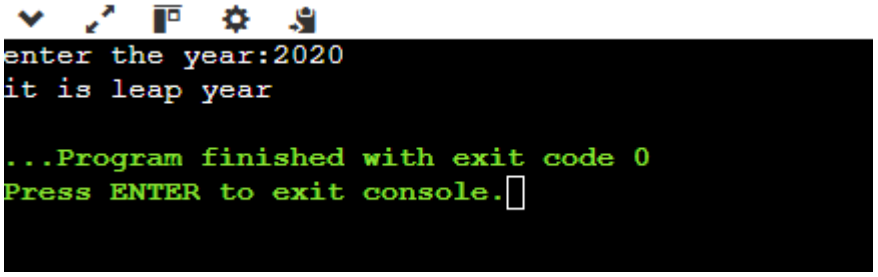
Else not a leap year.

Output: the year is leap year or not a leap year.

Code:

```
#include<stdio.h>
void main()
{
    int x;
    printf("enter the year:");
    scanf("%d",&x);
    if(x%4==0)
    {
        printf("it is leap year");
```

```
    }
    else
    {
        printf("it is not a leap year");
    }
}
```



4. Write a program to check whether a character is a vowel or consonant.

IPO:

Input: taking a character ch.

Process: if ch is equal to A,E,I,O,U (upper case) and ch is equal to a,e,i,o,u (lowercase).

Output: the given character is vowel or consonant.

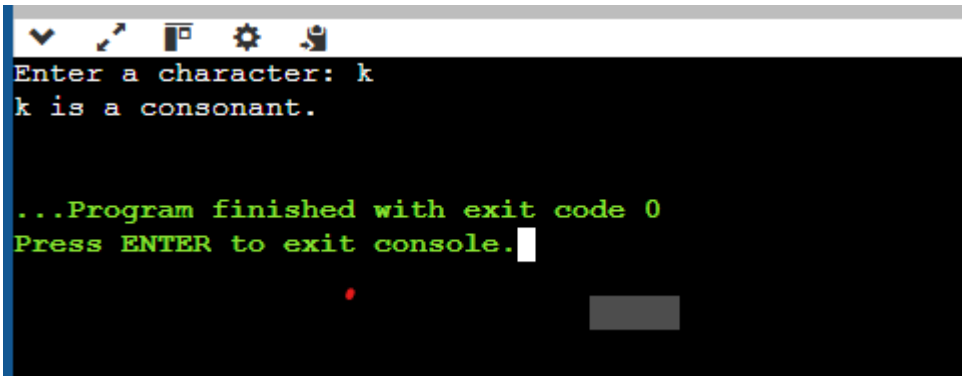
Code:

```
#include <stdio.h>
void main()
{
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);
    if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
        ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U')
        {
```

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

    }
    else
    {
        printf("%c is a consonant.\n", ch);

    }
}
```



5. Write a program to assign grades based on marks.

IPO:

Input: taking variable m.

Process: if m is greater than 90 and lesser than 100. then it is A grade.

if m is greater than 80 and lesser than 90. Then it is a B grade.

if m is greater than 70 and lesser than 80. Then it is a C grade.

if m is greater than 60 and lesser than 70. Then it is a D grade.

if m is greater than 50 and lesser than 60.then it is an E grade.

Else m is less than 50 then it is F grade.

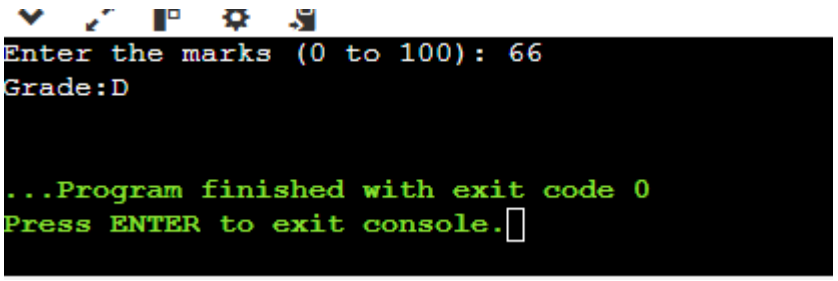
Output: A or B or C or D or E or F grade he scored.

Code:

```
#include <stdio.h>
```

```
void main()
{
   int m;
   printf("Enter the marks (0 to 100): ");
   scanf("%d",&m);
   if (m>=90 && m<=100)
   {
      printf("Grade:A\n");
   }
   else if (m>=80 && m<90)
   {
      printf("Grade:B\n");
   }
   else if (m>=70 && m<80)
   {
      printf("Grade:C\n");
   }
   else if (m>= 60 && m< 70)
   {
      printf("Grade:D\n");
   }
   else if (m>=50 && m<60)
   {
      printf("Grade:E\n");
   }
   else
   {
      printf("GRADE: F(FAIL)");
   }
```

}



6. Write a program to check whether a number is divisible by 5 and 11.

IPO:

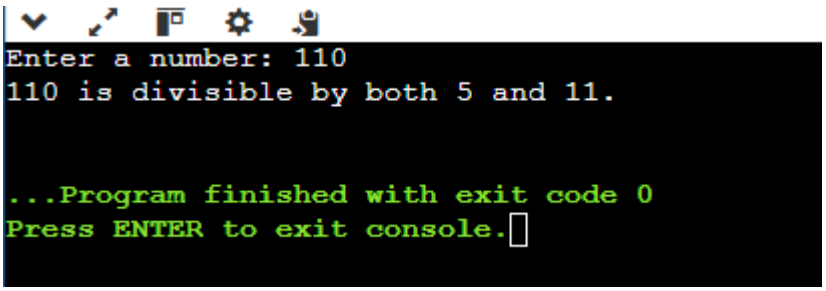
Input: taking variable n.

Process: if n is divisible by 5 and 11.then print the number.

Output: number is divisible by 5 and 11 or not divisible by 5 and 11.

Code:

```
#include <stdio.h>
void main()
{
   int n;
   printf("Enter a number: ");
   scanf("%d",&n);
   if (n%5==0 && n%11==0)
   {
      printf("%d is divisible by both 5 and 11.\n",n);
   }
   else
   {
      printf("%d is not divisible by both 5 and 11.\n",n);
   }
}
```



7. Write a program to find the absolute value of a number.

IPO:

Input: taking the variable num.

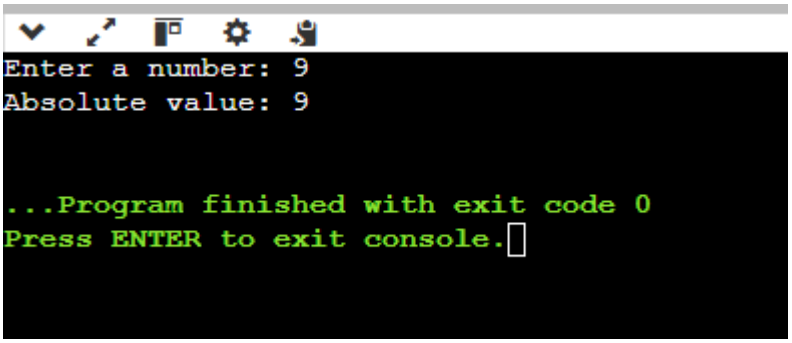
Process: if num is less than zero then print -num

Else print num.

Output: print the absolute (positive) value

Code:

```
#include <stdio.h>
void main()
{
   int num;
   printf("Enter a number: ");
   scanf("%d", &num);
   if (num < 0)
   {
      printf("Absolute value: %d\n", -num);
   }
   else
   {
      printf("Absolute value: %d\n", num);
   }
}
```



8. Write a menu-driven program to perform +, -, *, / operations.

IPO:

Input: taking two variables num1,num2.

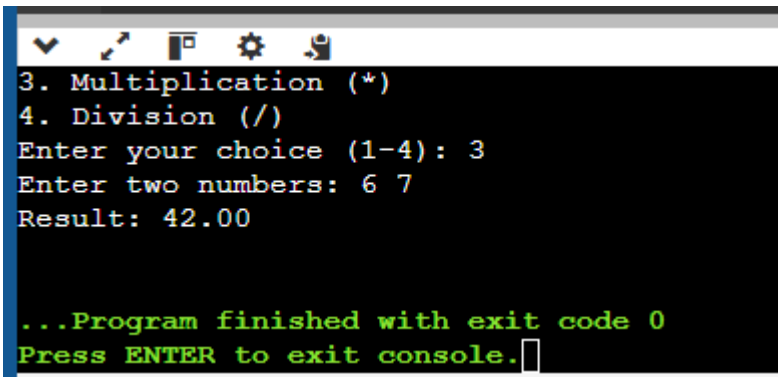
Process: perform the selected arithmetic operation.

Output: display the result of the operation.

Code:

```
#include <stdio.h>
void main()
{
   int choice;
   float num1, num2, result;
   printf("Select an operation to perform:\n");
   printf("1. Addition (+)\n");
   printf("2. Subtraction (-)\n");
   printf("3. Multiplication (*)\n");
   printf("4. Division (/)\n");
   printf("Enter your choice (1-4): ");
   scanf("%d", &choice);
   printf("Enter two numbers: ");
   scanf("%f %f", &num1, &num2);
   if (choice == 1)
   {
```

```
        result = num1 + num2;
        printf("Result: %.2f\n", result);
    }
    else if (choice == 2)
    {
        result = num1 - num2;
        printf("Result: %.2f\n", result);
    }
    else if (choice == 3)
    {
        result = num1 * num2;
        printf("Result: %.2f\n", result);
    }
    else if (choice == 4)
    {
        if (num2 != 0)
            result = num1 / num2;
        else
        {
            printf("Error: Division by zero is not allowed.\n");
        }
        printf("Result: %.2f\n", result);
    }
    else
    {
        printf("Invalid choice.\n");
    }
}
```



9. Write a program to find roots of a quadratic equation.

IPO:

Input: taking the coefficients of a,b,c.

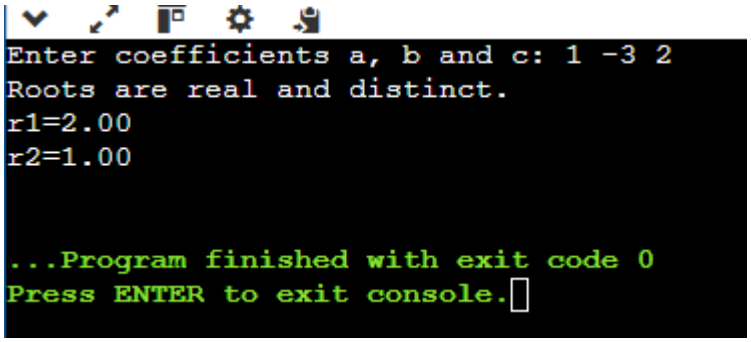
Process: calculate the discriminant D= b square mins 4 a c.

Output: prints the roots are real or complex.

Code:

```
#include <stdio.h>
#include <math.h>
void main()
{
   float a,b,c,d,r1,r2;
   printf("Enter coefficients a, b and c: ");
   scanf("%f %f %f", &a, &b, &c);
   d=b*b-4*a*c;
   if (d>0)
   {
      r1 = (-b + sqrt(d)) / (2 * a);
      r2 = (-b - sqrt(d)) / (2 * a);
      printf("Roots are real and distinct.\n");
      printf("r1=%.2f\n",r1);
      printf("r2=%.2f\n",r2);
```

```
    }
    else if (d==0)
    {
        r1=r2=-b/(2*a);
        printf("Roots are real and equal.\n");
        printf("Root=%.2f\n", r1);
    }
    else
    {
        float realPart = -b / (2 * a);
        float imagPart = sqrt(-d)/(2 * a);
        printf("Roots are complex and imaginary.\n");
        printf("r1=%.2f + %.2fi\n", realPart, imagPart);
        printf("r2=%.2f - %.2fi\n", realPart, imagPart);
    }
}
```



10. Write a program to find the number of digits in a number.

IPO:

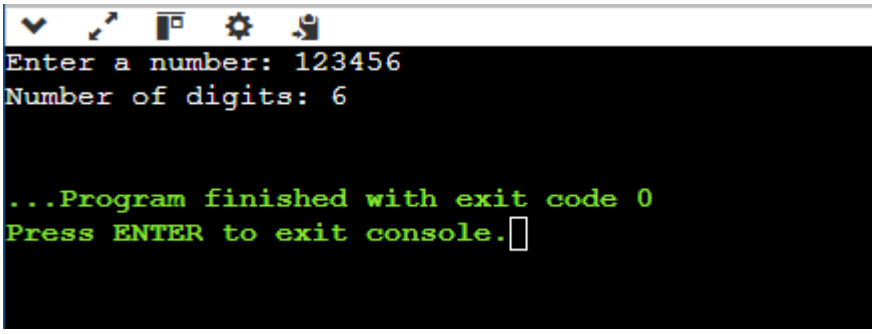
Input: taking the integer as a variable num.

Process: repeatedly divide numbers by 10 and count loops.

Output: numbers of digits in the input number.

Code:

```
#include <stdio.h>
void main()
{
   int num, count = 0;
   printf("Enter a number: ");
   scanf("%d", &num);
   if (num == 0)
   {
      count = 1;
   }
   else
   {
      if (num < 0)
      {
         num = -num;
      }
      while (num != 0)
      {
         num = num / 10;
         count++;
      }
   }
   printf("Number of digits: %d\n", count);
}
```


Enter a number: 123456
Number of digits: 6
...Program finished with exit code 0
Press ENTER to exit console.