Conditional Statements (4-8-2025)

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

C Program:

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

Sample Output:

```
Enter a number: -4
Negative
```

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

C Program:

```
#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("Largest = %d\n", a);
  else if (b >= a && b >= c)
    printf("Largest = %d\n", b);
  else
    printf("Largest = %d\n", c);
```

```
}
```

Sample Output:

```
Enter three numbers: 5 10 7
Largest = 10
```

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

C Program:

```
#include <stdio.h>
void main() {
  int year;
  printf("Enter a year: ");
  scanf("%d", &year);
  if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))
    printf("Leap year\n");
  else
    printf("Not a leap year\n");
}
```

Sample Output:

```
Enter a year: 2024
Leap year
```

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

C Program:

```
#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("Vowel\n");
```

```
  else
    printf("Consonant\n");
}
```

Sample Output:

```
Enter a character: e
Vowel
```

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

C Program:

```
#include <stdio.h>
void main() {
  int marks;
  printf("Enter marks: ");
  scanf("%d", &marks);
  if (marks >= 90)
    printf("Grade A\n");
  else if (marks >= 75)
    printf("Grade B\n");
  else if (marks >= 60)
    printf("Grade C\n");
  else if (marks >= 40)
    printf("Grade D\n");
  else
    printf("Fail\n");
}
```

Sample Output:

```
Enter marks: 78
Grade B
```

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

C Program:

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

Sample Output (Screenshot style):

```
Enter a number: 55
Divisible by both 5 and 11
```

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

C Program:

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

Sample Output (Screenshot style):

```
Enter a number: -25
Absolute value = 25
```

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

C Program:

```
#include <stdio.h>
void main() {
  int a, b, choice;
  printf("Enter two numbers: ");
  scanf("%d%d", &a, &b);
  printf("Enter 1 for +, 2 for -, 3 for *, 4 for /: ");
  scanf("%d", &choice);
  if (choice == 1)
    printf("Sum = %d\n", a + b);
  else if (choice == 2)
    printf("Difference = %d\n", a - b);
  else if (choice == 3)
    printf("Product = %d\n", a * b);
  else if (choice == 4 && b != 0)
    printf("Quotient = %d\n", a / b);
  else
    printf("Invalid choice or division by zero\n");
}
```

Sample Output (Screenshot style):

```
Enter two numbers: 12 4
Enter 1 for +, 2 for -, 3 for *, 4 for /: 3
Product = 48
```

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

C Program:

```
#include <stdio.h>
#include <math.h>
void main() {
  float a, b, c, d, root1, root2;
  printf("Enter coefficients a, b and c: ");
  scanf("%f%f%f", &a, &b, &c);
  d = b*b - 4*a*c;
  if (d > 0) {
    root1 = (-b + sqrt(d)) / (2*a);
    root2 = (-b - sqrt(d)) / (2*a);
```

```
    printf("Roots are real and distinct: %.2f and %.2f\n", root1, root2);
  } else if (d == 0) {
    root1 = root2 = -b / (2*a);
    printf("Roots are real and equal: %.2f\n", root1);
  } else {
    printf("Roots are imaginary\n");
  }
}
```

Sample Output (Screenshot style):

```
Enter coefficients a, b and c: 1 5 6
Roots are real and distinct: -2.00 and -3.00
```

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

C Program:

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

Sample Output (Screenshot style):

```
Enter a number: 7834
Number of digits = 4
```