Date	Sep-24-2024	Session No	2

Topic : Programming (C# and Dot Net) / Problem solving - Solutions

Solutions

Level 1

Print all even numbers between 1 and 20:

```
for (int i = 2; i <= 20; i += 2)
{
   Console.WriteLine(i);
}
```

Print numbers between 30 and 50 that are divisible by 5:

```
for (int i = 30; i <= 50; i++)
{
   if (i % 5 == 0)
   {
      Console.WriteLine(i);
   }
}
```

Print the square of each number from 1 to 10:

```
for (int i = 1; i <= 10; i++)
```

```
{
    Console.WriteLine(i * i);
}
```

Print all odd numbers between 1 and 15 (while loop):

```
int num = 1;
while (num <= 15)
{
    if (num % 2 != 0)
    {
        Console.WriteLine(num);
    }
    num++;
}
```

Print numbers from 100 down to 50 that are divisible by 10 (while loop):

```
int n = 100;
while (n >= 50)
{
    if (n % 10 == 0)
    {
        Console.WriteLine(n);
    }
    n--;
}
```

Print all prime numbers between 1 and 50:

```
for (int i = 2; i <= 50; i++)
{
    bool isPrime = true;
    for (int j = 2; j <= Math.Sqrt(i); j++)
    {
        if (i % j == 0)
        {
            isPrime = false;
            break;
        }
    }
    if (isPrime)
    {
        Console.WriteLine(i);
    }
}
```

Print the first 10 numbers of the Fibonacci sequence (while loop):

```
int a = 0, b = 1, count = 0;
while (count < 10)
{
    Console.WriteLine(a);
    int temp = a;
    a = b;
    b = temp + b;
    count++;
}
```

Print the multiplication table of 7:

```
for (int i = 1; i <= 10; i++)
{
    Console.WriteLine($"7 * {i} = {7 * i}");
}
```

Keep doubling a number until it exceeds 1000, starting from 1 (while loop):

```
int number = 1;
while (number <= 1000)
{
    Console.WriteLine(number);
    number *= 2;
}
```

Print numbers between 1 and 20, but skip numbers divisible by 3:

```
for (int i = 1; i <= 20; i++)
{
    if (i % 3 == 0) continue;
    Console.WriteLine(i);
}
```

Level 2

Print all numbers between 1 and 50, but stop when you encounter a number divisible by both 8 and 9:

```
for (int i = 1; i <= 50; i++)
{
    if (i % 8 == 0 && i % 9 == 0)
    {
        break;
    }
    Console.WriteLine(i);
```

```
}
```

Calculate the sum of all numbers between 1 and 100 divisible by 4 (while loop):

```
int sum = 0;
int i = 1;
while (i <= 100)
{
    if (i % 4 == 0)
    {
        sum += i;
    }
    i++;
}
Console.WriteLine("Sum: " + sum);
```

Print all the digits of a given number in reverse order:

```
int number = 1234;
while (number > 0)
{
    Console.Write(number % 10 + " ");
    number /= 10;
}
```

Find the smallest number greater than 500 divisible by both 7 and 13 (while loop):

```
int num = 501;
while (true)
{
    if (num % 7 == 0 && num % 13 == 0)
    {
        Console.WriteLine(num);
        break;
    }
    num++;
}
```

Print the first 10 terms of the arithmetic sequence starting with 5, with a common difference of 3:

```
int start = 5;
for (int i = 0; i < 10; i++)
{
    Console.WriteLine(start);
    start += 3;
}
```

Find the factorial of a given number (while loop):

```
int factorial = 1;
int n = 5; // Example number
int k = n;
while (k > 1)
{
   factorial *= k;
   k--;
}
Console.WriteLine($"Factorial of {n} is: " + factorial);
```

Assignment - Questions :

Level 1

1. Write a for loop to print all even numbers between 1 and 20.
2. Write a for loop to print numbers between 30 and 50 that are divisible by 5.
3. Write a for loop to print the square of each number from 1 to 10.
4. Write a while loop to print all odd numbers between 1 and 15.
5. Write a while loop to print numbers from 100 down to 50 that are divisible by 10.
6. Write a for loop to print all prime numbers between 1 and 50.
7. Write a while loop to print the first 10 numbers of the Fibonacci sequence.
8. Write a for loop to print the multiplication table of 7.
9. Write a while loop to keep doubling a number until it exceeds 1000, starting from 1.
10. Write a for loop to print numbers between 1 and 20, but skip numbers divisible by 3.

Level 2

1. Write a for loop to print all numbers between 1 and 50, but stop the loop when you encounter a number divisible by both 8 and 9.
2. Write a while loop to calculate the sum of all numbers between 1 and 100 that are divisible by 4, and print the result.
3. Write a for loop to print all the digits of a given number in reverse order (e.g., for 1234, print 4 3 2 1).

4. Write a while loop to find the smallest number greater than 500 that is divisible by both 7 and 13.
5. Write a for loop to print the first 10 terms of the arithmetic sequence starting with 5, with a common difference of 3 (i.e., 5, 8, 11, ...).
6. Write a while loop to find the factorial of a given number, and print the result.

END