Lab 4 (home tasks)

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1. Write a program in C++ that prints the numbers from 1 to 150 except the multiples of 10. Make use of the continue statement.

Code:

```cpp
#include <iostream>
using namespace std;

int main()
{
    for (int i = 1; i <= 150; i++)
    {
        if (i % 10 == 0)
        {
            // Skip multiples of 10
            continue;
        }
        cout << i << " ";
    }

    cout << endl;

    return 0;
}
```

Output:

```
1 2 3 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 31 32 33 34 35 36 37 38 39 41 42 43 44
45 46 47 48 49 51 52 53 54 55 56 57 58 59 61 62 63 64 65 66 67 68 69 71 72 73 74 75 76 77 78 79 81 82 83 84 85
86 87 88 89 91 92 93 94 95 96 97 98 99 101 102 103 104 105 106 107 108 109 111 112 113 114 115 116 117 118 119
121 122 123 124 125 126 127 128 129 131 132 133 134 135 136 137 138 139 141 142 143 144 145 146 147 148 149

--------------------------------
Process exited after 0.1249 seconds with return value 0
Press any key to continue . . .
```

2. Write a C++ program to find the sum of digits of a number.

   The sum of digits means adding all the digits of any number, for example, we take any
   number like 358. Its sum of all digits is 3+5+8=16.

Code:

```cpp
#include <iostream>
using namespace std;

int main() {
    int number, digit, sum = 0;

    cout << "Enter a number: ";
    cin >> number;

    // Ensure the number is non-negative
    if (number < 0) {
        cout << "Please enter a non-negative number." << endl;
        return 1;
    }

    int originalNumber = number;

    while (number > 0) {
        digit = number % 10; // Get the last digit
        sum += digit;        // Add the digit to the sum
        number /= 10;        // Remove the last digit
    }

    cout << "The sum of the digits of " << originalNumber << " is: " << sum << endl;

    return 0;
}
```

Output:

```
Enter a number: 4657436
The sum of the digits of 4657436 is: 35

--------------------------------
Process exited after 3.266 seconds with return value 0
Press any key to continue . . .
```

3. Write a program in C++ to check whether a number is prime or not.

Code:

```cpp
1
2    #include <iostream>
3    using namespace std;
4
5    int main() {
6        int num;
7        bool isPrime = true;
8
9        cout << "Enter a positive integer: ";
10       cin >> num;
11
12       // Check if the number is less than 2
13       if (num <= 1) {
14           cout << num << " is not a prime number." << endl;
15           return 0;
16       }
17
18       for (int i = 2; i * i <= num; i++) {
19           if (num % i == 0) {
20               isPrime = false;
21               break;
22           }
23       }
24
25       if (isPrime) {
26           cout << num << " is a prime number." << endl;
27       } else {
28           cout << num << " is not a prime number." << endl;
29       }
30
31       return 0;
32   }
```

Outputs:

```
Enter a positive integer: 45
45 is not a prime number.

------------------------------------
Process exited after 3.77 seconds with return value 0
Press any key to continue . . .
```

```
Enter a positive integer: 37
37 is a prime number.

------------------------------------
Process exited after 5.211 seconds with return value 0
Press any key to continue . . .
```