PROBLEM-1

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

int countDigits(long long n) {
    int count = 0;
    while (n != 0) {
        n = n / 10;
        ++count;
    }
    return count;
}

int main() {
    int num1, num2;
    long long product;
    cout << "Enter the first integer: ";
    cin >> num1;
    cout << "Enter the second integer: ";
    cin >> num2;
    product = (long long)num1 * num2;
    cout << "The product of " << num1 << " and " << num2 << " is: " << product << endl;
    int digitCount = countDigits(product);
    cout << "The number of digits in the product is: " << digitCount << endl;

    return 0;
}

```

Output:

```
C:\Users\Thanay Bharath\One
Enter the first integer: 12
Enter the second integer: 5
The product of 12 and 5 is: 60
The number of digits in the product is: 2

--------------------------------
Process exited after 6.755 seconds with return value 0
Press any key to continue . . .
```

PROBLEM-2

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

int main() {
    int temp;
    cout << "Enter the current temperature (in Fahrenheit): ";
    cin >> temp;
    if (temp >= 80) {
        cout << "Suggested activity: Swimming" << endl;
    } else if (temp >= 60 && temp < 80) {
        cout << "Suggested activity: Tennis" << endl;
    } else if (temp >= 40 && temp < 60) {
        cout << "Suggested activity: Golf" << endl;
    } else {
        cout << "Suggested activity: Skiing" << endl;
    }

    return 0;
}
```

Output:

```
C:\Users\Thanay Bharath\One
Enter the current temperature (in Fahrenheit): 82
Suggested activity: Swimming

--------------------------------
Process exited after 3.219 seconds with return value 0
Press any key to continue . . .
```

PROBLEM-3

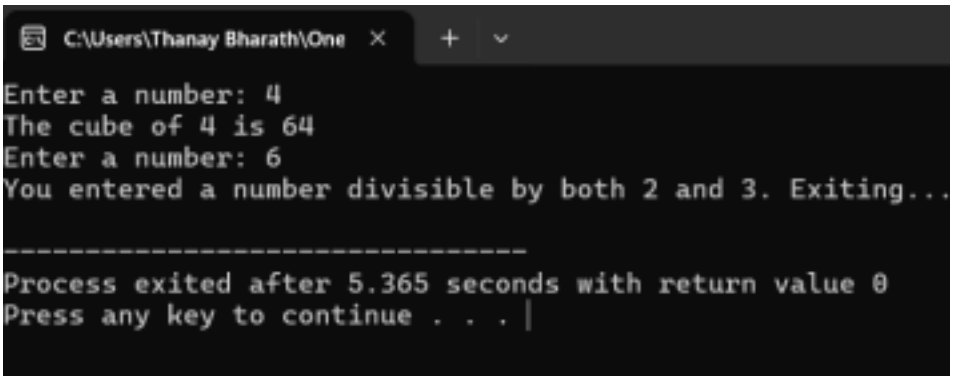
```cpp
#include <iostream>

int main() {
    int number;

    while (true) {
        std::cout << "Enter a number: ";
        std::cin >> number;
        if (number % 2 == 0 && number % 3 == 0) {
            std::cout << "You entered a number divisible by both 2 and 3. Exiting..." << std::endl;
            break;
        }
        int cube = number * number * number;
        std::cout << "The cube of " << number << " is " << cube << std::endl;
    }

    return 0;
}
```

Output:



Problem 4-

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

int main() {
    int a, b, c, d;
    cout << "Enter the first fraction (a/b): ";
    cin >> a;
    cin.ignore();
    cin >> b;
    cout << "Enter the second fraction (c/d): ";
    cin >> c;
    cin.ignore();
    cin >> d;
    int numerator = a * c;
    int denominator = b * d;
    cout << "The product of the two fractions is: " << numerator << "/" << denominator << endl;

    return 0;
}
```

Output:

```
C:\Users\Thanay Bharath\One
Enter the first fraction (a/b): 4/5
Enter the second fraction (c/d): 2/8
The product of the two fractions is: 8/40

--------------------------------
Process exited after 13.15 seconds with return value 0
Press any key to continue . . .
```

Problem-5

a)

Problem

```cpp
#include <iostream>
#include <iomanip>

int main() {
    double num = 45.6789;
    std::cout << std::setw(10) << std::fixed << std::setprecision(3) << num << std::endl;
    return 0;
}
```

Output-

```
    45.679

--------------------------------
Process exited after 0.2544 seconds with return value 0
Press any key to continue . . .
```

b)

Problem

```cpp
#include <iostream>
#include <iomanip>

int main() {
    double num = 0.00034567;
    std::cout << std::scientific << std::setprecision(6) << num << std::endl;
    return 0;
}
```

Output

```
C:\Users\Thanay Bharath\One
3.456700e-004

--------------------------------
Process exited after 0.2494 seconds with return value 0
Press any key to continue . . .
```

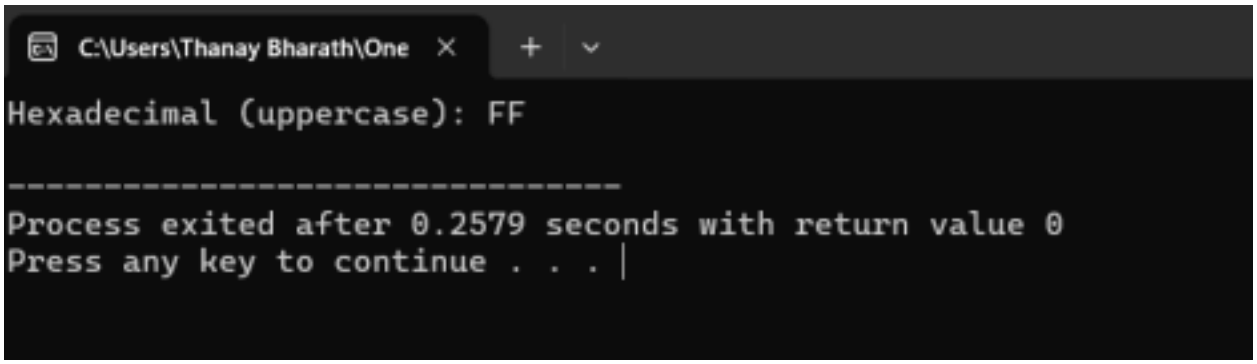
c)

```cpp
#include <iostream>
#include <iomanip>

int main() {
    int decimalNumber = 255;
    std::cout << "Hexadecimal (uppercase): " << std::uppercase << std::hex << decimalNumber << std::endl;

    return 0;
}
```

Output-



d)

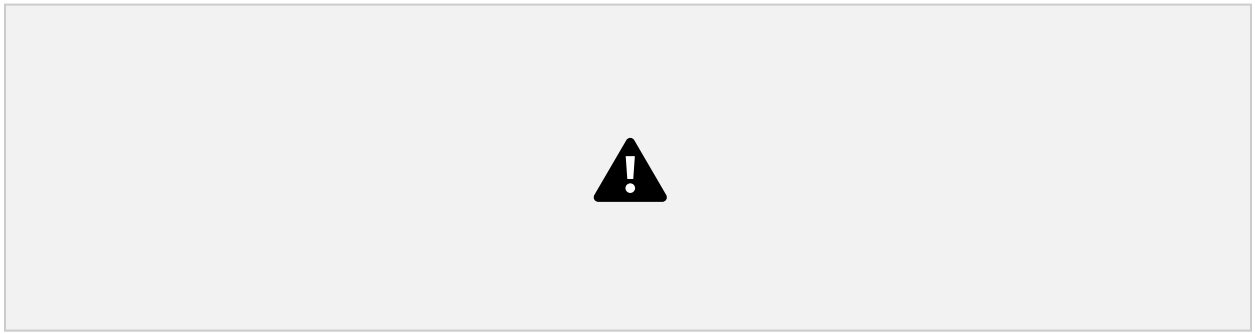
```cpp
#include <iostream>
#include <iomanip>

int main() {
    double number = 987.654321;
    std::cout << "Fixed-point (4 decimal places): "
              << std::fixed << std::setprecision(4) << number << std::endl;

    return 0;
}
```

Output :

e)



Output-