1: Take a number n from the user and print all the even numbers between 1 and n(inclusive). Do this using while and do while loop separately.

Using while loop :

```cpp
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    int i = 1;
    cout << "Even numbers between 1 and " << n << ": ";

    while (i <= n) {
        if (i % 2 == 0) {
            cout << i << " ";
        }
        i++;
    }

    cout << endl;
    return 0;
}
```

Using do while loop :

```cpp
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    int i = 1;
    cout << "Even numbers between 1 and " << n << ": ";

    do {
        if (i % 2 == 0) {
            cout << i << " ";
        }
        i++;
    } while (i <= n);

    cout << endl;
    return 0;
}
```

2: Find the factorial of a number n using a while loop and do a while loop.

Using while loop :

```
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    int factorial = 1;
    int i = 1;

    while (i <= n) {
        factorial *= i;
        i++;
    }

    cout << "Factorial of " << n << " is: " <<
factorial << endl;

    return 0;
}
```

Using do While loop :

```cpp
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    int factorial = 1;
    int i = 1;

    do {
        factorial *= i;
        i++;
    } while (i <= n);

    cout << "Factorial of " << n << " is: " <<
factorial << endl;

    return 0;
}
```

3: Given a number n, print all the numbers from 1 to n(inclusive) which are not divisible by 3 and 5. (use Continue here).

```cpp
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    cout << "Numbers from 1 to " << n << " not divisible by
3 and 5: ";

    for (int i = 1; i <= n; i++) {
        if (i % 3 == 0 && i % 5 == 0) {
            continue; // Skip numbers divisible by both 3
and 5
        }
        cout << i << " ";
    }

    cout << endl;

    return 0;
}
```

4: Given a number n, print the corresponding month of it. For n=1, print Jan, n=2, print Feb…, if the user puts any invalid number, don't do anything. (Use switch here)

```cpp
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (1-12): ";
    cin >> n;

    cout << "Month: ";

    switch (n) {
        case 1:
            cout << "Jan";
            break;
        case 2:
            cout << "Feb";
            break;
        case 3:
            cout << "Mar";
            break;
        case 4:
            cout << "Apr";
            break;
        case 5:
            cout << "May";
            break;
        case 6:
            cout << "Jun";
```

```
            break;
        case 7:
            cout << "Jul";
            break;
        case 8:
            cout << "Aug";
            break;
        case 9:
            cout << "Sep";
            break;
        case 10:
            cout << "Oct";
            break;
        case 11:
            cout << "Nov";
            break;
        case 12:
            cout << "Dec";
            break;
        default:
            // Handle invalid input (numbers not in
the range 1-12)
            break;
    }

    cout << endl;

    return 0;
}
```

5: Print all the Capital and small letters using a while loop. It means A-Z, then a-z.

```
#include <iostream>

using namespace std;

int main() {
    char uppercase = 'A';
    char lowercase = 'a';

    cout << "Uppercase letters (A-Z): ";
    while (uppercase <= 'Z') {
        cout << uppercase << " ";
        uppercase++;
    }

    cout << "\nLowercase letters (a-z): ";
    while (lowercase <= 'z') {
        cout << lowercase << " ";
        lowercase++;
    }

    cout << endl;

    return 0;
}
```

6: Give a number n, find if it is prime or not, use a while loop and break here to solve it.

Logic: We will get the divisor of number till n/2 if there is any. If there is a divisor it's **not a prime number** otherwise it is a **prime number.**

```
#include <iostream>

using namespace std;

int main() {
    int n;
    cout << "Enter a number (n): ";
    cin >> n;

    if (n <= 1) {
        cout << n << " is not a prime number." << endl;
        return 0;
    }

    int i = 2;
    bool isPrime = true;

    while (i <= n / 2) {
        if (n % i == 0) {
```

```
            isPrime = false;
            break; // If n is divisible by any number
from 2 to n/2, it's not prime
        }
        i++;
    }

    if (isPrime) {
        cout << n << " is a prime number." << endl;
    } else {
        cout << n << " is not a prime number." << endl;
    }

    return 0;
}
```