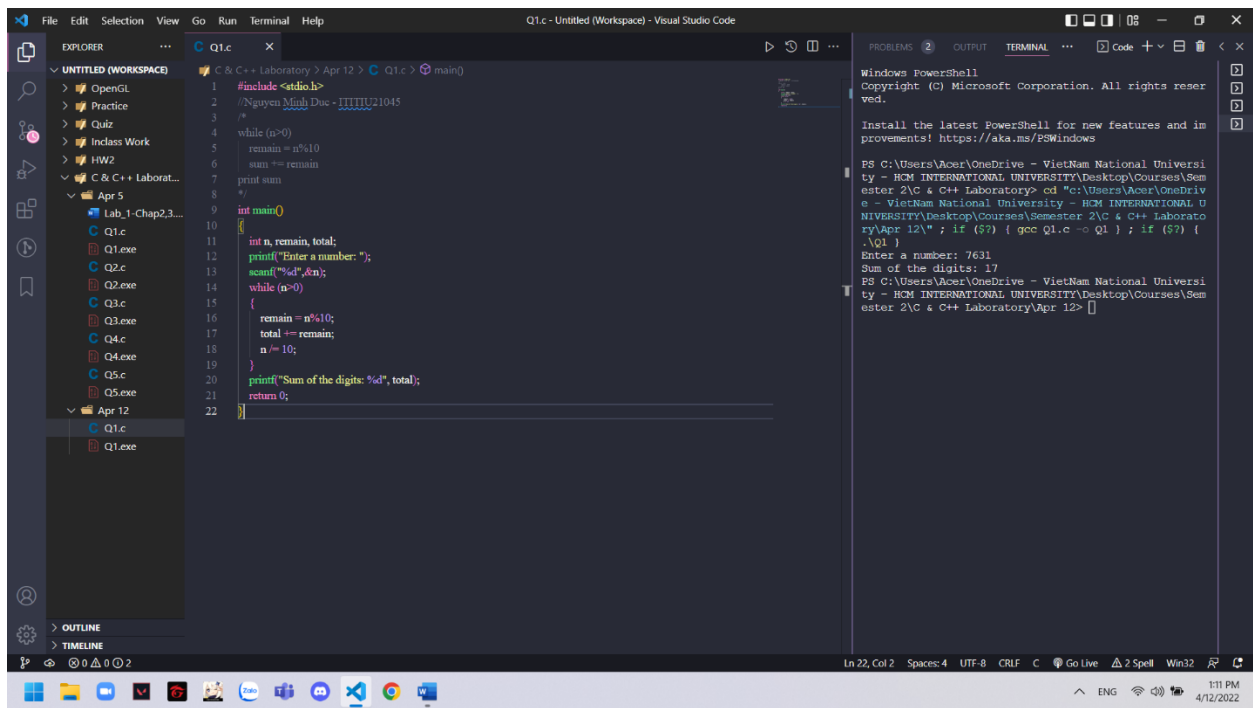


Q1:

```
#include <stdio.h>
//Nguyen Minh Duc - ITITI21045
/*
while (n>0)
    remain = n%10
    sum += remain
print sum
*/
int main()
{
    int n, remain, total;
    printf("Enter a number: ");
    scanf("%d",&n);
    while (n>0)
    {
        remain = n%10;
        total += remain;
        n /= 10;
    }
    printf("Sum of the digits: %d", total);
    return 0;
}
```



Q2:

```
#include <stdio.h>
//Nguyen Minh Duc - ITITI21045
/*
Enter the number
flag = 1
for i = 2 to number
    while (number % i ==0)
        if (!flag) print "*"
        print i
        number = number/i
        flag = 0
*/
void product_prime(int);

void product_prime(int n)
{
    int oriNum, flag = 1;
    oriNum = n;
    printf("%d = ",oriNum);
    for (int i = 2; i <= n; i++)
    {
        while (n % i == 0)
        {
            if (!flag)
                printf("*");
            printf("%d",i);
            n /= i;
            flag = 0;
        }
    }
}

int main()
{
    int a;
    printf("Enter a number: ");
    scanf("%d",&a);
    product_prime(a);
    return 0;
}
```

The image shows a Visual Studio Code editor with a C++ file named `Q2.c` open. The code implements a prime factorization algorithm. It includes a `product_prime` function that prints the prime factors of a given number `n`. The `main` function prompts the user to enter a number, reads it, and then calls `product_prime`.

```
1 #include <stdio.h>
2 //Nguyễn Minh Đức - ITITI21045
3 /*
4  * Enter the number
5  * flag = 1
6  * for i = 2 to number
7  * while (number % i == 0)
8  *   if (!flag) print "*"
9  *   print i
10  *   number = number/i
11  *   flag = 0
12  */
13 void product_prime(int);
14
15 void product_prime(int n)
16 {
17     int oriNum, flag = 1;
18     oriNum = n;
19     printf("%d = ", oriNum);
20     for (int i = 2; i <= n; i++)
21     {
22         while (n % i == 0)
23         {
24             if (!flag)
25                 printf("*");
26             printf("%d", i);
27             n /= i;
28             flag = 0;
29         }
30     }
31 }
32
33 int main()
34 {
35     int a;
36     printf("Enter a number: ");
37     scanf("%d", &a);
38     product_prime(a);
39 }
```

The terminal window on the right shows the execution of the program. It displays the prompt "Enter a number: 24" and the output "24 = 2*2*2*3".

```
PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory> cd "C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12\"; if ($?) { gcc Q2.c -o Q2 }; if ($?) { .\Q2 }
Enter a number: 24
24 = 2*2*2*3
PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12>
```

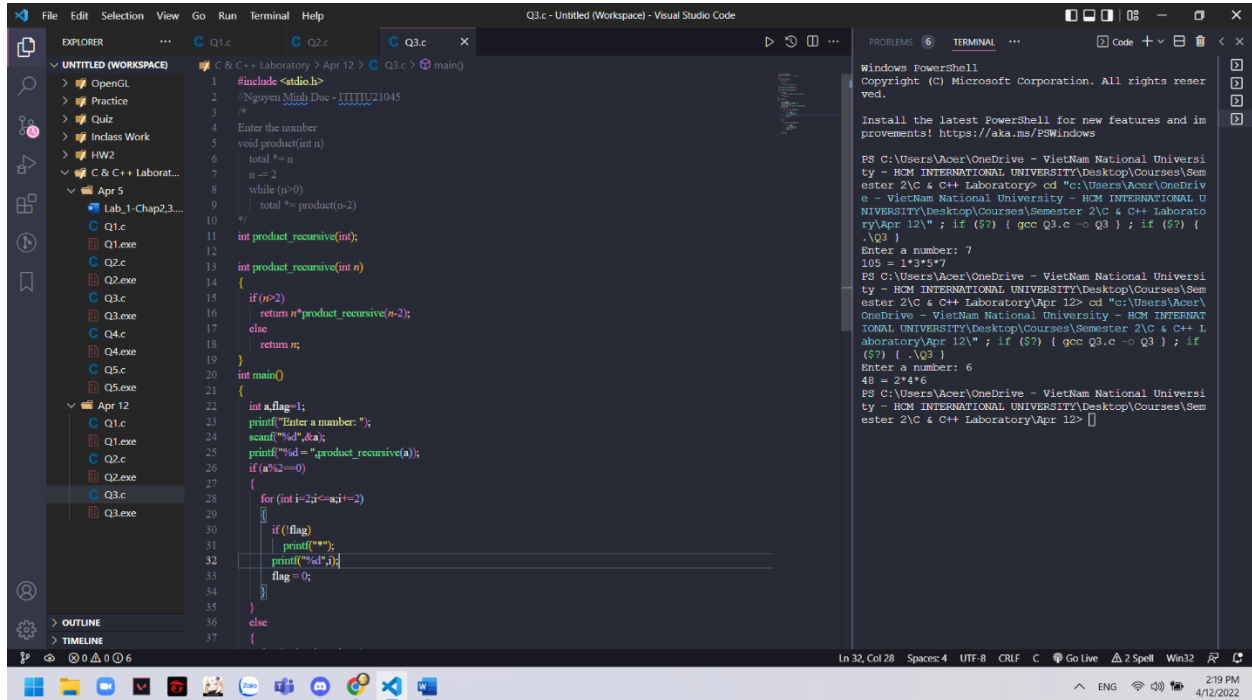
Q3:

```
#include <stdio.h>
//Nguyen Minh Duc - ITITI21045
/*
Enter the number
void product(int n)
    total *= n
    n -= 2
    while (n>0)
        total *= product(n-2)
*/
int product_recursive(int);

int product_recursive(int n)
{
    if (n>2)
        return n*product_recursive(n-2);
    else
        return n;
}

int main()
{
    int a,flag=1;
    printf("Enter a number: ");
    scanf("%d",&a);
    printf("%d = ",product_recursive(a));
    if (a%2==0)
    {
        for (int i=2;i<=a;i+=2)
        {
            if (!flag)
                printf("*");
            printf("%d",i);
            flag = 0;
        }
    }
    else
    {
        for (int i=1;i<=a;i+=2)
        {
            if (!flag)
                printf("*");
            printf("%d",i);
            flag = 0;
        }
    }
}
```

```
}  
}  
return 0;  
}
```



Q4:

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
/*
function flip() uses random 0 or 1 to determine tails or heads
for i = 1 to 100, if function flip() returns 0, print toss time and tails,
otherwise, print toss time and heads
*/
int flip();

int flip()
{
    int toss = rand() % 2;
    if (toss==0)
        return 0;
    else
        return 1;
}

int main()
{
    srand(time(0));
    int count_tails = 0, count_heads = 0;
    for (int i=1;i<=100;i++)
    {
        if (flip()==0)
        {
            printf("Toss time %d: Tails\n",i);
            count_tails += 1;
        }
        else
        {
            printf("Toss time %d: Heads\n",i);
            count_heads += 1;
        }
    }
    printf("Number of times that heads appears: %d\n",count_heads);
    printf("Number of times that tails appears: %d",count_tails);
    return 0;
}
```

```

1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <time.h>
4  /*
5   function flip() uses random 0 or 1 to determine tails or heads
6   for i = 1 to 100, if function flip() returns 0, print toss time and tails, otherwise, print toss time and heads
7   */
8  int flip();
9
10 int flip()
11 {
12     int toss = rand() % 2;
13     if (toss == 0)
14         return 0;
15     else
16         return 1;
17 }
18
19 int main()
20 {
21     srand(time(0));
22     int count_tails = 0, count_heads = 0;
23     for (int i = 1; i <= 100; i++)
24     {
25         if (flip() == 0)
26         {
27             printf("Toss time %d: Tails\n", i);
28             count_tails++;
29         }
30         else
31         {
32             printf("Toss time %d: Heads\n", i);
33             count_heads++;
34         }
35     }
36     printf("Number of times that heads appears: %d\n", count_heads);
37     printf("Number of times that tails appears: %d\n", count_tails);

```

Toss time 61: Heads
Toss time 62: Heads
Toss time 63: Tails
Toss time 64: Tails
Toss time 65: Heads
Toss time 66: Heads
Toss time 67: Heads
Toss time 68: Tails
Toss time 69: Heads
Toss time 70: Tails
Toss time 71: Heads
Toss time 72: Heads
Toss time 73: Tails
Toss time 74: Heads
Toss time 75: Tails
Toss time 76: Heads
Toss time 77: Heads
Toss time 78: Heads
Toss time 79: Tails
Toss time 80: Heads
Toss time 81: Heads
Toss time 82: Heads
Toss time 83: Heads
Toss time 84: Tails
Toss time 85: Tails
Toss time 86: Heads
Toss time 87: Tails
Toss time 88: Tails
Toss time 89: Tails
Toss time 90: Heads
Toss time 91: Heads
Toss time 92: Tails
Toss time 93: Heads
Toss time 94: Tails
Toss time 95: Heads
Toss time 96: Heads
Toss time 97: Tails
Toss time 98: Tails
Toss time 99: Heads
Toss time 100: Tails
Number of times that heads appears: 58
Number of times that tails appears: 42
PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\courses\Semester 2\C & C++ Laboratory\Apr 12>

Q5:

```
#include <stdio.h>
/*
Enter 2 numbers a and b
for i = 1 to a*b, if i fully divided by a and b, then returns i and stop
*/
int LCM(int,int);

int LCM(int a, int b)
{
    int n;
    n = a*b;
    if (a%b==0)
        return a;
    else if (b%a == 0)
        return b;
    else
    {
        for (int i=1;i<=n;i++)
        {
            if ((i%a==0) && (i%b==0))
                return i;
            else;
                return n;
        }
    }
}

int main()
{
    int x,y;
    printf("Enter two integers: ");
    scanf("%d%d",&x,&y);
    printf("The LCM of them is %d",LCM(x,y));
    return 0;
}
```



```

1  #include <stdio.h>
2  /*
3   * Enter 2 numbers a and b
4   * for i= 1 to a*b, if i fully divided by a and b, then returns i and stop
5   */
6  int LCM(int,int);
7
8  int LCM(int a, int b)
9  {
10     int n;
11     n = a*b;
12     if (a%b==0)
13         return a;
14     else if (b%a==0)
15         return b;
16     else
17     {
18         for (int i=1;i<=n;i++)
19         {
20             if ((i%a==0) && (i%b==0))
21                 return i;
22             else;
23                 return n;
24         }
25     }
26 }
27
28 int main()
29 {
30     int x,y;
31     printf("Enter two integers: ");
32     scanf("%d%d",&x,&y);
33     printf("The LCM of them is %d",LCM(x,y));
34     return 0;
35 }

```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory> cd "C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12\"; if (\$?) { gcc Q5.c -o Q5 }; if (\$?) { .\Q5 }
Enter two integers: 2 6
The LCM of them is 6
PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12> cd "C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12\"; if (\$?) { gcc Q5.c -o Q5 }; if (\$?) { .\Q5 }
Enter two integers: 5 12
The LCM of them is 60
PS C:\Users\Acer\OneDrive - VietNam National University - HCM INTERNATIONAL UNIVERSITY\Desktop\Courses\Semester 2\C & C++ Laboratory\Apr 12>