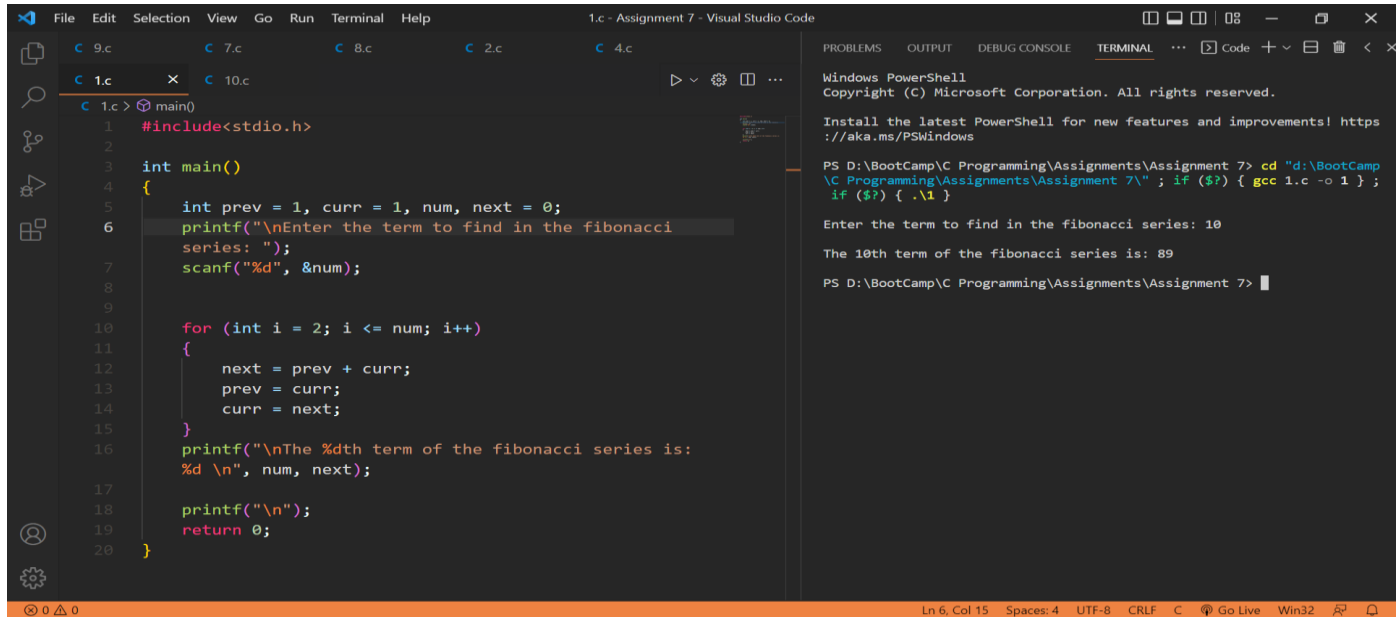


ASSIGNMENT – 07

Q1.



```
1.c - Assignment 7 - Visual Studio Code
1.c
1  #include<stdio.h>
2
3  int main()
4  {
5      int prev = 1, curr = 1, num, next = 0;
6      printf("\nEnter the term to find in the fibonacci
series: ");
7      scanf("%d", &num);
8
9
10     for (int i = 2; i <= num; i++)
11     {
12         next = prev + curr;
13         prev = curr;
14         curr = next;
15     }
16     printf("\nThe %dth term of the fibonacci series is:
%d \n", num, next);
17
18     printf("\n");
19     return 0;
20 }
```

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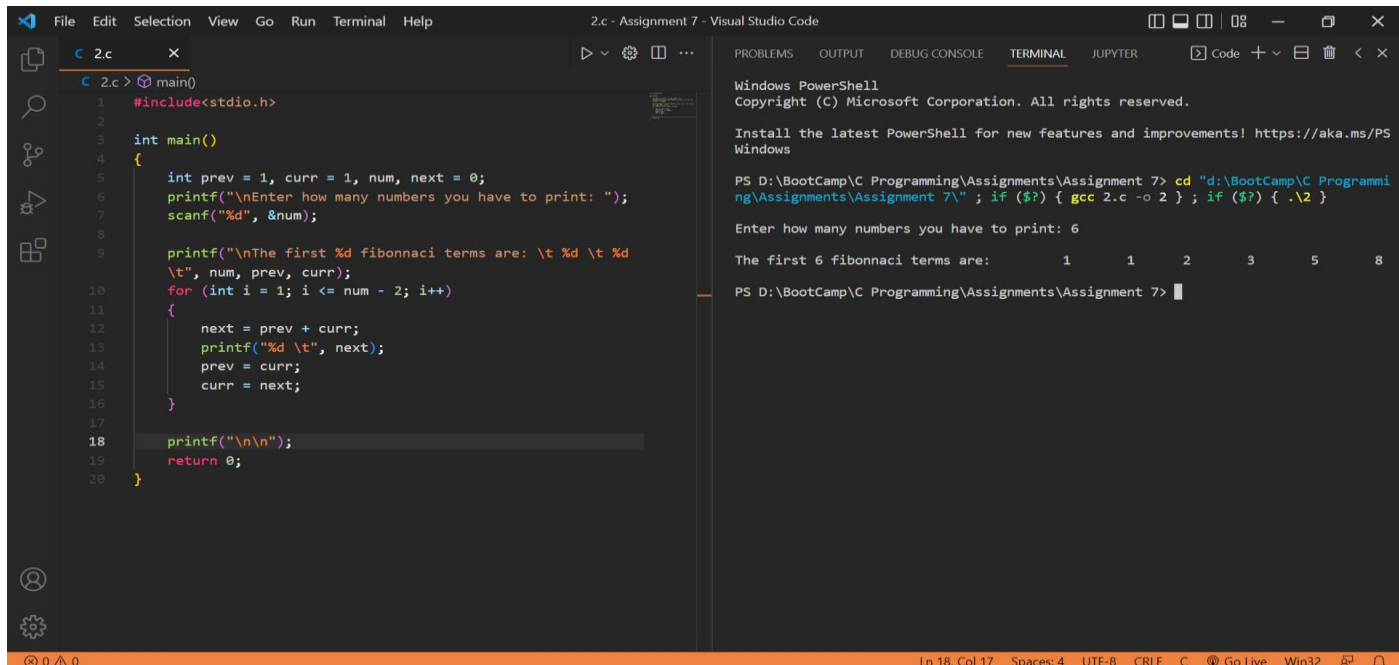
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if (\$?) { gcc 1.c -o 1 } ; if (\$?) { .\1 }

Enter the term to find in the fibonacci series: 10

The 10th term of the fibonacci series is: 89

PS D:\BootCamp\C Programming\Assignments\Assignment 7> |

Q2.



```
2.c - Assignment 7 - Visual Studio Code
2.c
1  #include<stdio.h>
2
3  int main()
4  {
5      int prev = 1, curr = 1, num, next = 0;
6      printf("\nEnter how many numbers you have to print: ");
7      scanf("%d", &num);
8
9      printf("\nThe first %d fibonnaci terms are: \t %d \t %d
\t", num, prev, curr);
10     for (int i = 1; i <= num - 2; i++)
11     {
12         next = prev + curr;
13         printf("%d \t", next);
14         prev = curr;
15         curr = next;
16     }
17
18     printf("\n\n");
19     return 0;
20 }
```

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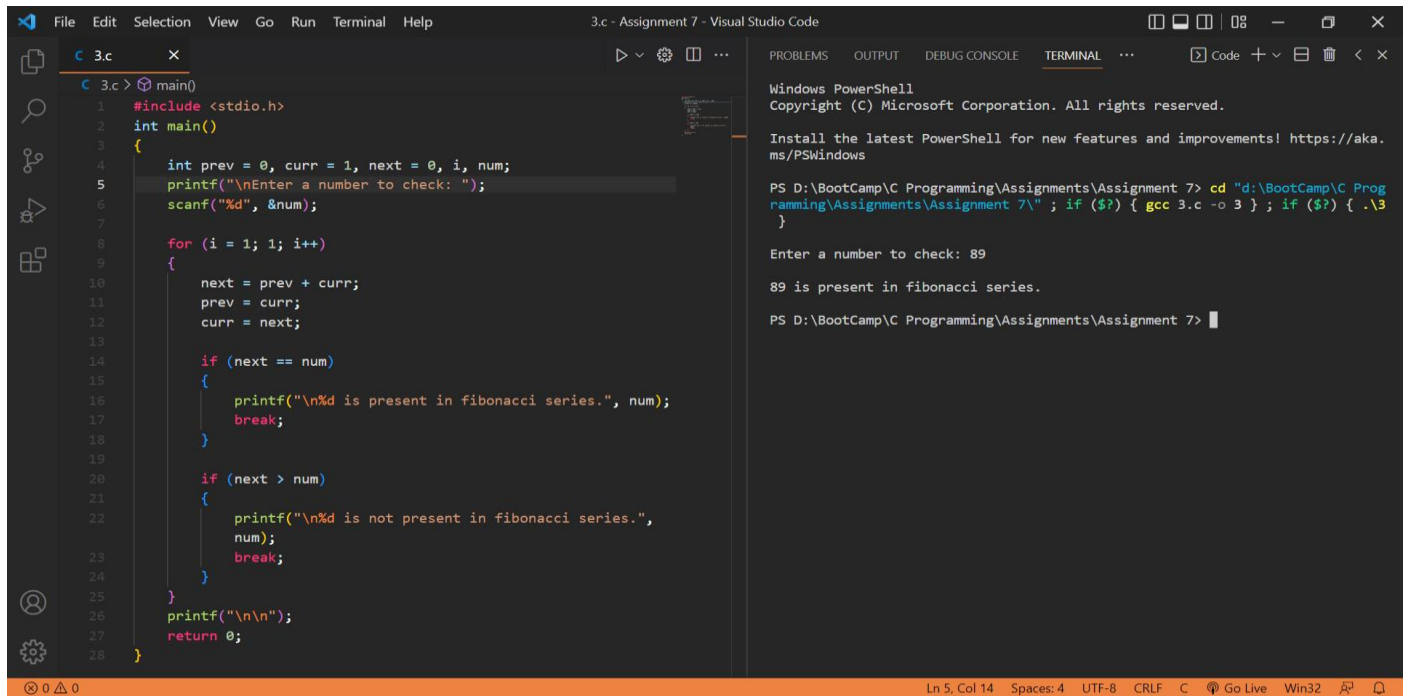
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if (\$?) { gcc 2.c -o 2 } ; if (\$?) { .\2 }

Enter how many numbers you have to print: 6

The first 6 fibonnaci terms are: 1 1 2 3 5 8

PS D:\BootCamp\C Programming\Assignments\Assignment 7> |

Q3.



The screenshot shows a Visual Studio Code editor with a C file named `3.c`. The code implements a function to check if a given number is part of the Fibonacci sequence. It uses a loop to generate Fibonacci numbers until it either finds the input number or exceeds it. The terminal window on the right shows the execution of the program, where the user enters 89, and the program correctly identifies it as being in the Fibonacci series.

```
1 #include <stdio.h>
2 int main()
3 {
4     int prev = 0, curr = 1, next = 0, i, num;
5     printf("\nEnter a number to check: ");
6     scanf("%d", &num);
7
8     for (i = 1; i <= num; i++)
9     {
10        next = prev + curr;
11        prev = curr;
12        curr = next;
13
14        if (next == num)
15        {
16            printf("\n%d is present in fibonacci series.", num);
17            break;
18        }
19
20        if (next > num)
21        {
22            printf("\n%d is not present in fibonacci series.",
23                num);
24            break;
25        }
26    }
27    printf("\n\n");
28    return 0;
29 }
```

Terminal Output:

```
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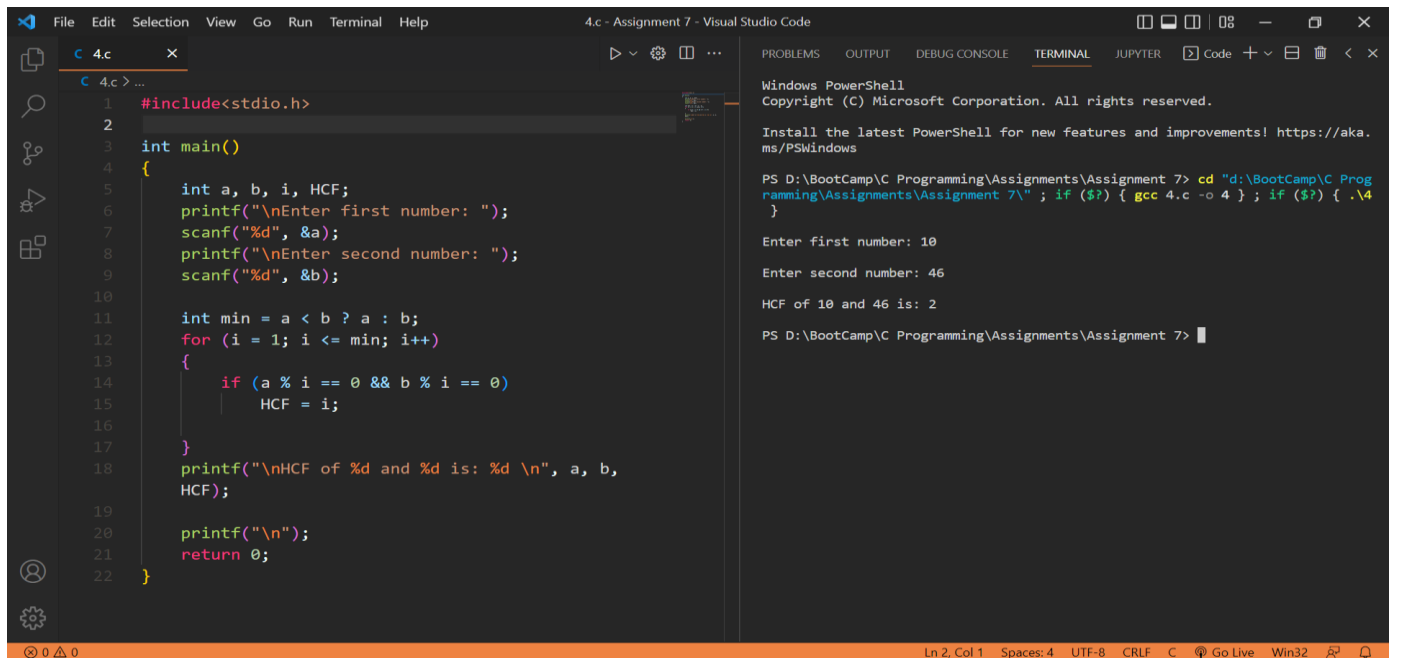
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\"; if ($?) { gcc 3.c -o 3 }; if ($?) { .\3 }

Enter a number to check: 89

89 is present in fibonacci series.

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

Q4.



The screenshot shows a Visual Studio Code editor with a C file named `4.c`. The code implements a function to find the Highest Common Factor (HCF) of two numbers. It uses a loop to find the greatest common divisor by checking factors from the minimum of the two numbers down to 1. The terminal window on the right shows the execution of the program, where the user enters 10 and 46, and the program correctly identifies the HCF as 2.

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int a, b, i, HCF;
6     printf("\nEnter first number: ");
7     scanf("%d", &a);
8     printf("\nEnter second number: ");
9     scanf("%d", &b);
10
11    int min = a < b ? a : b;
12    for (i = 1; i <= min; i++)
13    {
14        if (a % i == 0 && b % i == 0)
15            HCF = i;
16    }
17    printf("\nHCF of %d and %d is: %d \n", a, b, HCF);
18
19    printf("\n\n");
20    return 0;
21 }
```

Terminal Output:

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\"; if ($?) { gcc 4.c -o 4 }; if ($?) { .\4 }

Enter first number: 10
Enter second number: 46

HCF of 10 and 46 is: 2

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

Q5.

The image shows a screenshot of the Visual Studio Code editor with a C program open in the editor and its execution output in the terminal.

Editor Content:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int a, b, i, HCF;
6     printf("\nEnter first number: ");
7     scanf("%d", &a);
8     printf("\nEnter second number: ");
9     scanf("%d", &b);
10
11     int min = a < b ? a : b;
12     for (i = 1; i <= min; i++)
13     {
14         if (a % i == 0 && b % i == 0)
15             HCF = i;
16     }
17     if (HCF == 1)
18         printf("\n%d and %d are co-prime numbers.", a, b);
19     else
20         printf("\n%d and %d are not co-prime numbers.",
21             a, b);
22
23     printf("\n\n");
24     return 0;
25 }
26
```

Terminal Output:

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if ($?) { gcc 5.c -o 5 } ; if ($?) { .\5 }

Enter first number: 2

Enter second number: 5

2 and 5 are co-prime numbers.

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

Q6.

The image shows a Visual Studio Code editor window with a C program for finding prime numbers. The program is named `6.c` and is located in the `6.c` directory. The code is as follows:

```
#include<stdio.h>

int main()
{
    int i, j, flag = 0;

    printf("\nAll the prime numbers
    under 100 are: \t");
    for (i = 2; i <= 100; i++)
    {
        flag = 0;
        for (j = 2; j <= i / 2; j++)
        {
            if (i % j == 0)
            {
                flag = 1;
                break;
            }
        }
        if (flag == 0)
            printf("%d \t", i);
    }

    printf("\n\n");
    return 0;
}
```

The terminal output shows the execution of the program, displaying all prime numbers under 100:

```
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if ($?) { gcc 6.c -o 6 } ; if ($?) { .\6 }

All the prime numbers under 100 are:  2      3      5      7      11     13     17     19
23    29    31    37    41    43    47    53    59    61    67    71    73    79
9     83    89    97

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

The status bar at the bottom indicates the current line and column: `Ln 23, Col 15`. The output also shows the number of spaces (4) and the current file encoding (UTF-8).

Q7.

The screenshot shows a Visual Studio Code editor with a C file named `7.c`. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int a, b, i, j, flag = 0;
6     printf("\nEnter first number: ");
7     scanf("%d", &a);
8     printf("\nEnter second number: ");
9     scanf("%d", &b);
10
11     printf("\nThe prime numbers between %d and %d are: \t", a, b);
12
13     for (i = a + 1; i <= b - 1; i++)
14     {
15         flag = 0;
16         for (j = 2; j <= i / 2; j++)
17         {
18             if (i % j == 0)
19             {
20                 flag = 1;
21                 break;
22             }
23         }
24         if (flag == 0)
25             printf("%d \t", i);
26     }
27
28     printf("\n\n");
29     return 0;
30 }
```

The terminal on the right shows the execution of the program. It prompts for the first and second numbers, which are 15 and 30 respectively. The output shows the prime numbers between 15 and 30: 17, 19, 23, and 29.

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\"; if ($?) { gcc 7.c -o 7 }; if ($?) { .\7 }

Enter first number: 15
Enter second number: 30

The prime numbers between 15 and 30 are:          17      19      23      29

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

Q8.

The screenshot shows a Visual Studio Code editor with a C file named `8.c`. The code is as follows:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int num, i, j, flag = 0;
6     printf("\nEnter a number: ");
7     scanf("%d", &num);
8
9     for (i = num + 1; i <= num + 1; i++)
10    {
11        flag = 0;
12        for (j = 2; j <= i / 2; j++)
13        {
14            if (i % j == 0)
15                flag = 1;
16        }
17        if (flag == 0)
18        {
19            printf("\nThe next prime number after %d is: %d", num, i);
20            break;
21        }
22    }
23
24    printf("\n\n");
25    return 0;
26 }
```

The terminal on the right shows the execution of the program. It prompts for a number, which is 24. The output shows the next prime number after 24 is 29.

```
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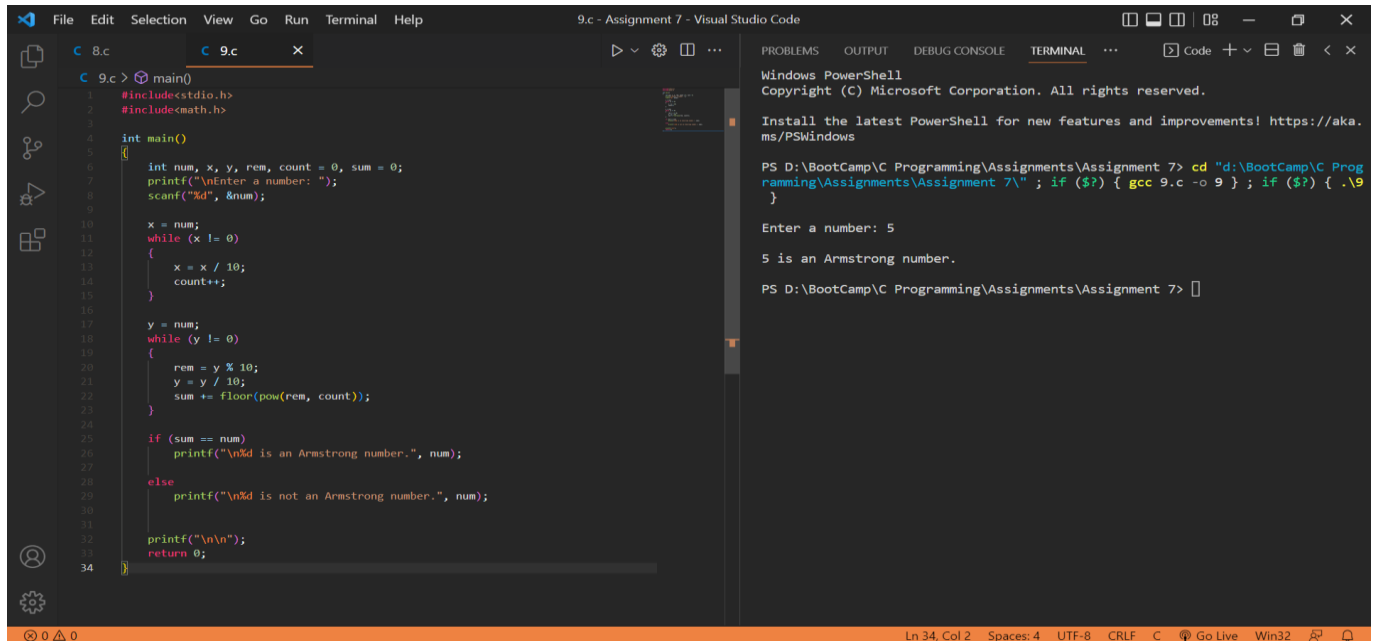
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\"; if ($?) { gcc 8.c -o 8 }; if ($?) { .\8 }

Enter a number: 24

The next prime number after 24 is: 29

PS D:\BootCamp\C Programming\Assignments\Assignment 7>
```

Q9.



```
9.c - Assignment 7 - Visual Studio Code

File Edit Selection View Go Run Terminal Help

C 8.c 9.c x

C 9.c > main()
1 #include<stdio.h>
2 #include<math.h>
3
4 int main()
5 {
6     int num, x, y, rem, count = 0, sum = 0;
7     printf("\nEnter a number: ");
8     scanf("%d", &num);
9
10    x = num;
11    while (x != 0)
12    {
13        x = x / 10;
14        count++;
15    }
16
17    y = num;
18    while (y != 0)
19    {
20        rem = y % 10;
21        y = y / 10;
22        sum += floor(pow(rem, count));
23    }
24
25    if (sum == num)
26        printf("\n%d is an Armstrong number.", num);
27    else
28        printf("\n%d is not an Armstrong number.", num);
29
30    printf("\n\n");
31    return 0;
32 }
33
34

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL ...
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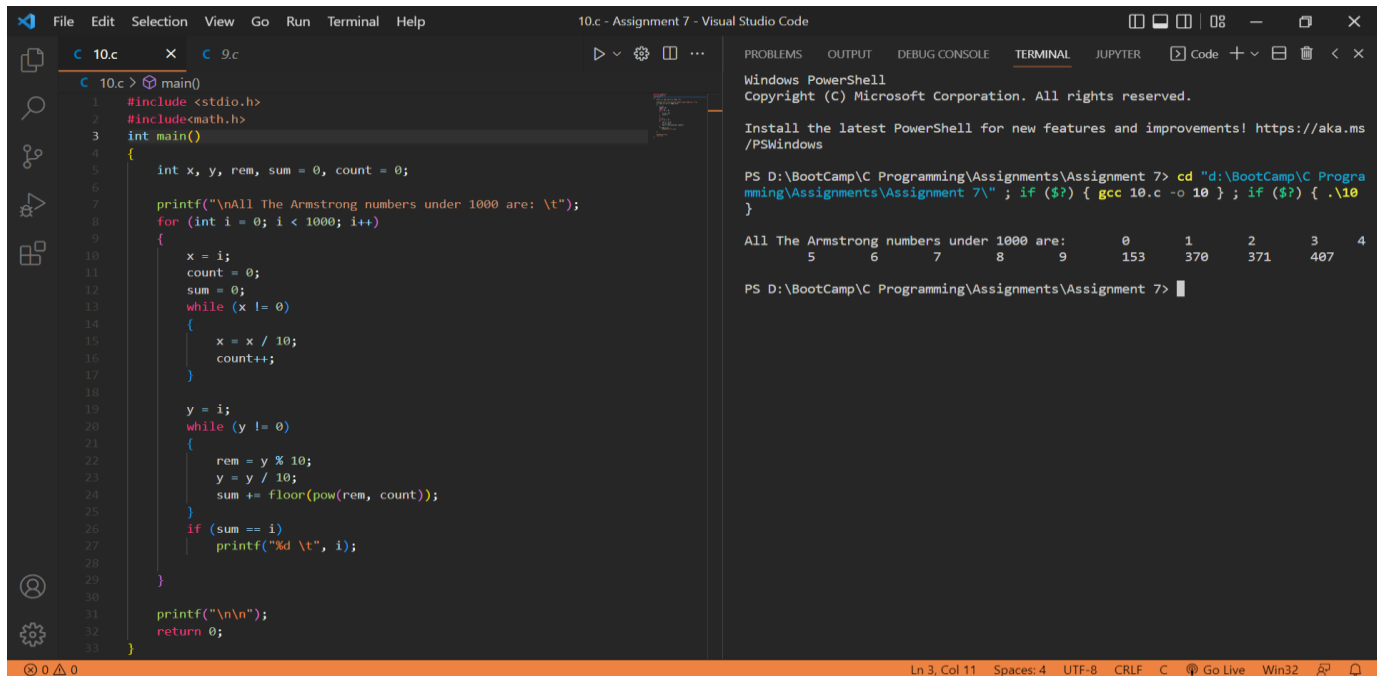
PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if ($?) { gcc 9.c -o 9 } ; if ($?) { .\9 }

Enter a number: 5

5 is an Armstrong number.

PS D:\BootCamp\C Programming\Assignments\Assignment 7> |
```

Q10.



```
10.c - Assignment 7 - Visual Studio Code

File Edit Selection View Go Run Terminal Help

C 10.c x C 9.c

C 10.c > main()
1 #include <stdio.h>
2 #include<math.h>
3 int main()
4 {
5     int x, y, rem, sum = 0, count = 0;
6
7     printf("\nAll The Armstrong numbers under 1000 are: \t");
8     for (int i = 0; i < 1000; i++)
9     {
10        x = i;
11        count = 0;
12        sum = 0;
13        while (x != 0)
14        {
15            x = x / 10;
16            count++;
17        }
18
19        y = i;
20        while (y != 0)
21        {
22            rem = y % 10;
23            y = y / 10;
24            sum += floor(pow(rem, count));
25        }
26        if (sum == i)
27            printf("%d \t", i);
28    }
29
30    printf("\n\n");
31    return 0;
32 }
33

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER ...
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PS D:\BootCamp\C Programming\Assignments\Assignment 7> cd "d:\BootCamp\C Programming\Assignments\Assignment 7\" ; if ($?) { gcc 10.c -o 10 } ; if ($?) { .\10 }

All The Armstrong numbers under 1000 are:      0      1      153      370      371      407

PS D:\BootCamp\C Programming\Assignments\Assignment 7> |
```