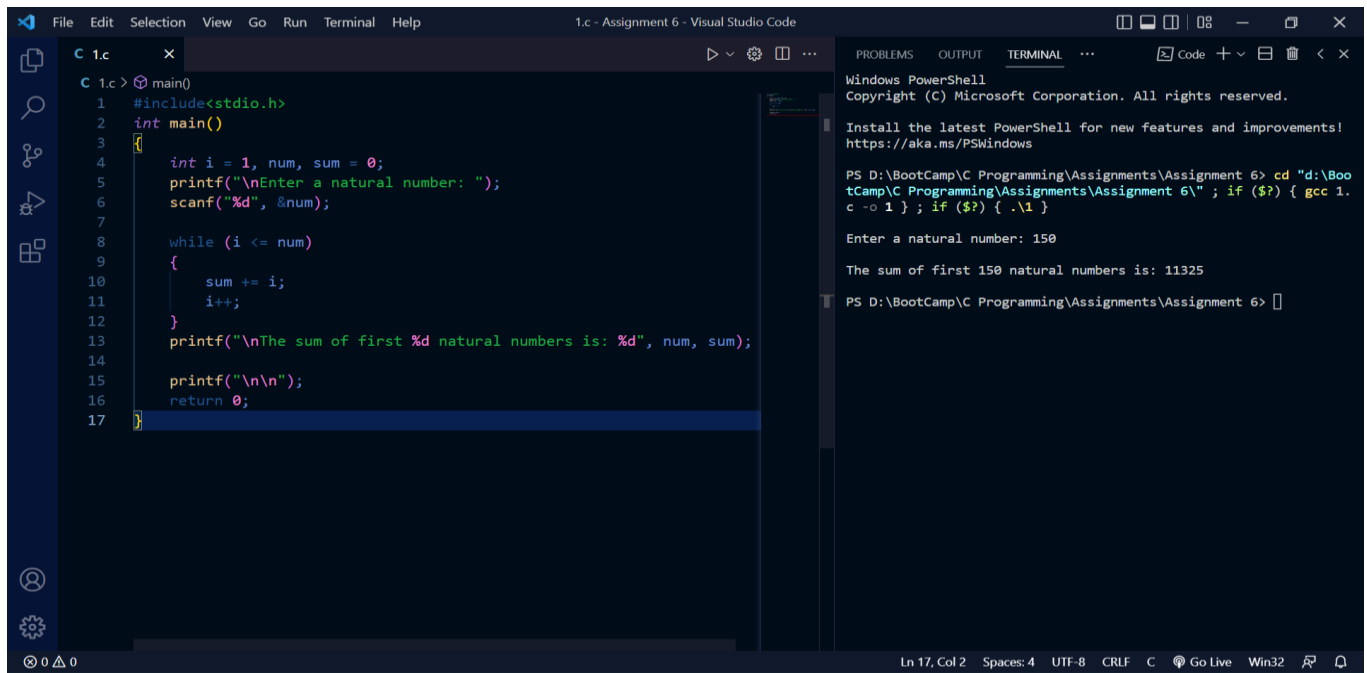


ASSIGNMENT – 06

(Use any loop to solve)

Q1.



The screenshot shows a Visual Studio Code editor with a C program for Q1. The program calculates the sum of the first 'num' natural numbers using a while loop. The terminal output shows the program being compiled and executed with the input 150, resulting in a sum of 11325.

```
1.c - Assignment 6 - Visual Studio Code

C 1.c > main()
1 #include<stdio.h>
2 int main()
3 {
4     int i = 1, num, sum = 0;
5     printf("\nEnter a natural number: ");
6     scanf("%d", &num);
7
8     while (i <= num)
9     {
10        sum += i;
11        i++;
12    }
13    printf("\nThe sum of first %d natural numbers is: %d", num, sum);
14
15    printf("\n\n");
16    return 0;
17 }
```

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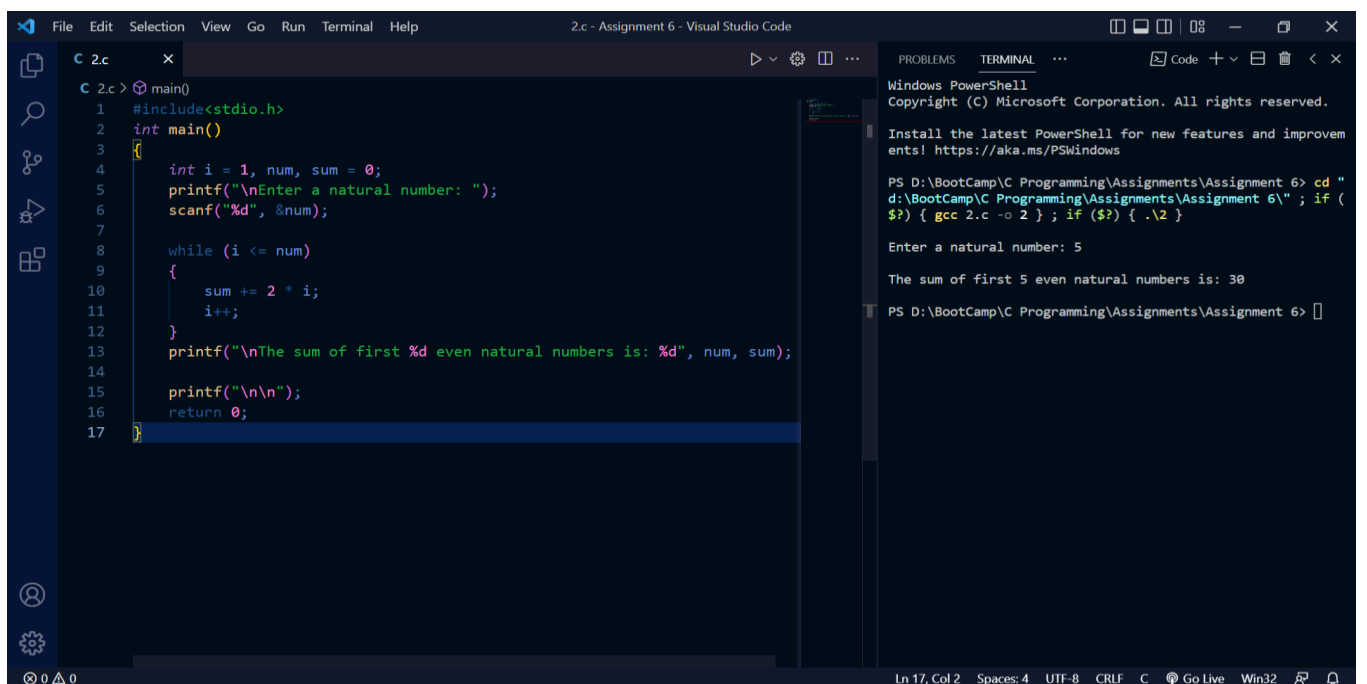
PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\"; if (\$?) { gcc 1.c -o 1 }; if (\$?) { .\1 }

Enter a natural number: 150

The sum of first 150 natural numbers is: 11325

PS D:\BootCamp\C Programming\Assignments\Assignment 6>

Q2.



The screenshot shows a Visual Studio Code editor with a C program for Q2. The program calculates the sum of the first 'num' even natural numbers using a while loop. The terminal output shows the program being compiled and executed with the input 5, resulting in a sum of 30.

```
2.c - Assignment 6 - Visual Studio Code

C 2.c > main()
1 #include<stdio.h>
2 int main()
3 {
4     int i = 1, num, sum = 0;
5     printf("\nEnter a natural number: ");
6     scanf("%d", &num);
7
8     while (i <= num)
9     {
10        sum += 2 * i;
11        i++;
12    }
13    printf("\nThe sum of first %d even natural numbers is: %d", num, sum);
14
15    printf("\n\n");
16    return 0;
17 }
```

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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\"; if (\$?) { gcc 2.c -o 2 }; if (\$?) { .\2 }

Enter a natural number: 5

The sum of first 5 even natural numbers is: 30

PS D:\BootCamp\C Programming\Assignments\Assignment 6>

Q3.

The screenshot shows a Visual Studio Code window with a C program named 3.c. The program calculates the sum of the first 'num' odd natural numbers. The terminal output shows the program being compiled and executed with 'num' set to 25, resulting in a sum of 625.

```
3.c
1  #include<stdio.h>
2  int main()
3  {
4      int i = 1, num, sum = 0;
5      printf("\nEnter a natural number: ");
6      scanf("%d", &num);
7
8      while (i <= num)
9      {
10         sum += (2 * i) - 1;
11         i++;
12     }
13     printf("\nThe sum of first %d odd natural numbers is: %d", num, sum);
14
15     printf("\n\n");
16     return 0;
17 }
```

Terminal Output:

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\"; if ($?) { gcc 3.c -o 3 }; if ($?) { .\3 }

Enter a natural number: 25

The sum of first 25 odd natural numbers is: 625

PS D:\BootCamp\C Programming\Assignments\Assignment 6>
```

Q4.

The screenshot shows a Visual Studio Code window with a C program named 4.c. The program calculates the sum of the squares of the first 'num' natural numbers. The terminal output shows the program being compiled and executed with 'num' set to 10, resulting in a sum of 385.

```
4.c
1  #include<stdio.h>
2  int main()
3  {
4      int i = 1, num, sum = 0;
5      printf("\nEnter a natural number: ");
6      scanf("%d", &num);
7
8      while (i <= num)
9      {
10         sum += i*i;
11         i++;
12     }
13     printf("\nThe sum of squares of first %d natural numbers is: %d", num, sum);
14
15     printf("\n\n");
16     return 0;
17 }
```

Terminal Output:

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\"; if ($?) { gcc 4.c -o 4 }; if ($?) { .\4 }

Enter a natural number: 10

The sum of squares of first 10 natural numbers is: 385

PS D:\BootCamp\C Programming\Assignments\Assignment 6>
```

Q5.

The screenshot shows a Visual Studio Code editor with a C file named `5.c`. The code is as follows:

```
1 #include<stdio.h>
2 int main()
3 {
4     int i = 1, num, sum = 0;
5     printf("\nEnter a natural number: ");
6     scanf("%d", &num);
7
8     while (i <= num)
9     {
10        sum += i*i*i;
11        i++;
12    }
13    printf("\nThe sum of cubes of first %d natural numbers is: %d", num, sum);
14
15    printf("\n\n");
16    return 0;
17 }
```

The terminal on the right shows the execution of the program:

```
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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if ($?) { gcc 5.c -o 5 } ; if ($?) { .\5 }

Enter a natural number: 20

The sum of cubes of first 20 natural numbers is: 44100

PS D:\BootCamp\C Programming\Assignments\Assignment 6>
```

Q6.

The screenshot shows a Visual Studio Code editor with a C file named `6.c`. The code is as follows:

```
1 #include<stdio.h>
2 int main()
3 {
4     int i, num, res;
5     printf("\nEnter a number whose factorial is to be calculated: ");
6     scanf("%d", &num);
7
8     if (num == 0 || num == 1)
9     {
10        printf("\nThe factorial of %d is: %d", num, 1);
11    }
12    else if (num < 0)
13    {
14        printf("\nThe factorial of %d is not defined", num);
15    }
16    else
17    {
18        res = 1;
19        for(i = num; i > 1; i--)
20            res = res * i;
21        printf("\nThe factorial of %d is: %d", num, res);
22    }
23
24    printf("\n\n");
25    return 0;
26 }
```

The terminal on the right shows the execution of the program:

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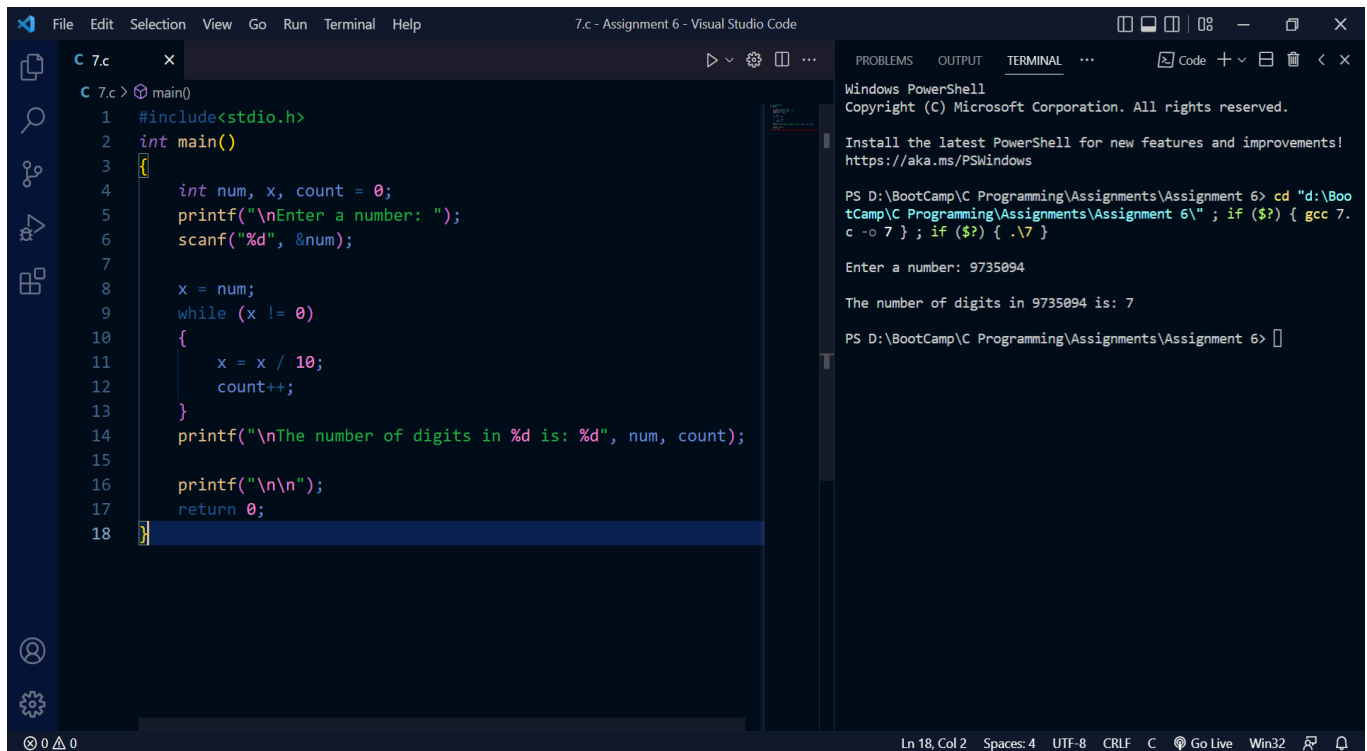
PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if ($?) { gcc 6.c -o 6 } ; if ($?) { .\6 }

Enter a number whose factorial is to be calculated: 6

The factorial of 6 is: 720

PS D:\BootCamp\C Programming\Assignments\Assignment 6>
```

Q7.



The screenshot shows the Visual Studio Code editor with a C program named 7.c. The program prompts the user to enter a number and then calculates the number of digits in that number using a while loop. The terminal output shows the program being compiled and executed with the input 9735094, resulting in the output: "The number of digits in 9735094 is: 7".

```
7.c - Assignment 6 - Visual Studio Code

C 7.c x
C 7.c > main()
1 #include<stdio.h>
2 int main()
3 {
4     int num, x, count = 0;
5     printf("\nEnter a number: ");
6     scanf("%d", &num);
7
8     x = num;
9     while (x != 0)
10    {
11        x = x / 10;
12        count++;
13    }
14    printf("\nThe number of digits in %d is: %d", num, count);
15
16    printf("\n\n");
17    return 0;
18 }
```

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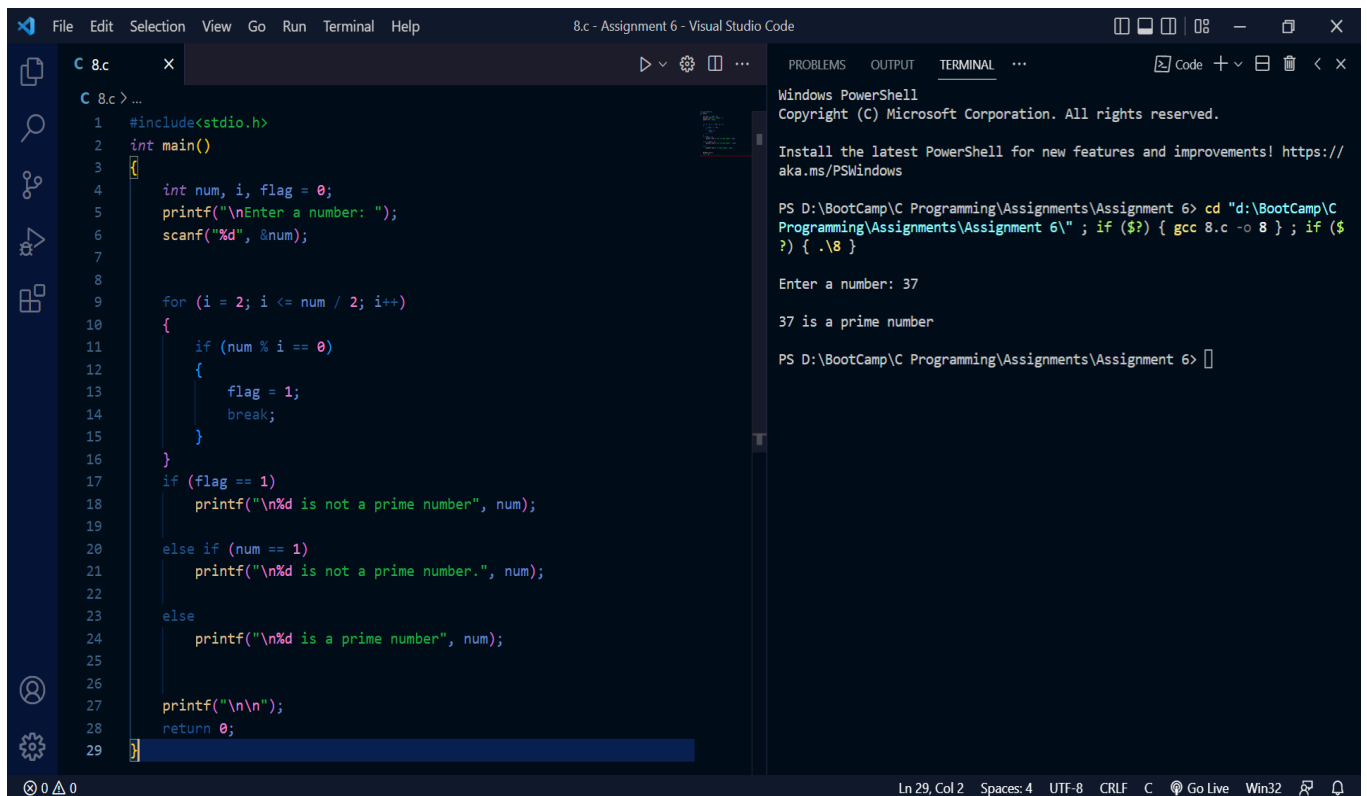
PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if (\$?) { gcc 7.c -o 7 } ; if (\$?) { .\7 }

Enter a number: 9735094

The number of digits in 9735094 is: 7

PS D:\BootCamp\C Programming\Assignments\Assignment 6>

Q8.



The screenshot shows the Visual Studio Code editor with a C program named 8.c. The program prompts the user to enter a number and then checks if it is a prime number using a for loop. The terminal output shows the program being compiled and executed with the input 37, resulting in the output: "37 is a prime number".

```
8.c - Assignment 6 - Visual Studio Code

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

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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if (\$?) { gcc 8.c -o 8 } ; if (\$?) { .\8 }

Enter a number: 37

37 is a prime number

PS D:\BootCamp\C Programming\Assignments\Assignment 6>

Q9.

The screenshot shows a Visual Studio Code editor with a C program named 9.c. The program prompts the user to enter two numbers, 34 and 7, and calculates their Least Common Multiple (LCM) as 238. The terminal window on the right shows the execution of the program, including the compilation command `gcc 9.c -o 9` and the execution command `./9`.

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

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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if (\$?) { gcc 9.c -o 9 } ; if (\$?) { .\9 }
Enter first number: 34
Enter second number: 7
L.C.M of 34 and 7 is: 238
PS D:\BootCamp\C Programming\Assignments\Assignment 6>

Q10.

The screenshot shows a Visual Studio Code editor with a C program named 10.c. The program prompts the user to enter a number, 826246, and calculates its reverse as 642628. The terminal window on the right shows the execution of the program, including the compilation command `gcc 10.c -o 10` and the execution command `./10`.

```
1 #include<stdio.h>
2 int main()
3 {
4     int num, x, rem, rev = 0;
5     printf("\nEnter a number: ");
6     scanf("%d", &num);
7
8     x = num;
9     while (x != 0)
10    {
11        rem = x % 10;
12        x = x / 10;
13        rev = (rev * 10) + rem;
14    }
15    printf("\nThe reverse of %d is: %d", num, rev);
16
17    printf("\n\n");
18    return 0;
19 }
```

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PS D:\BootCamp\C Programming\Assignments\Assignment 6> cd "d:\BootCamp\C Programming\Assignments\Assignment 6\" ; if (\$?) { gcc 10.c -o 10 } ; if (\$?) { .\10 }
Enter a number: 826246
The reverse of 826246 is: 642628
PS D:\BootCamp\C Programming\Assignments\Assignment 6>