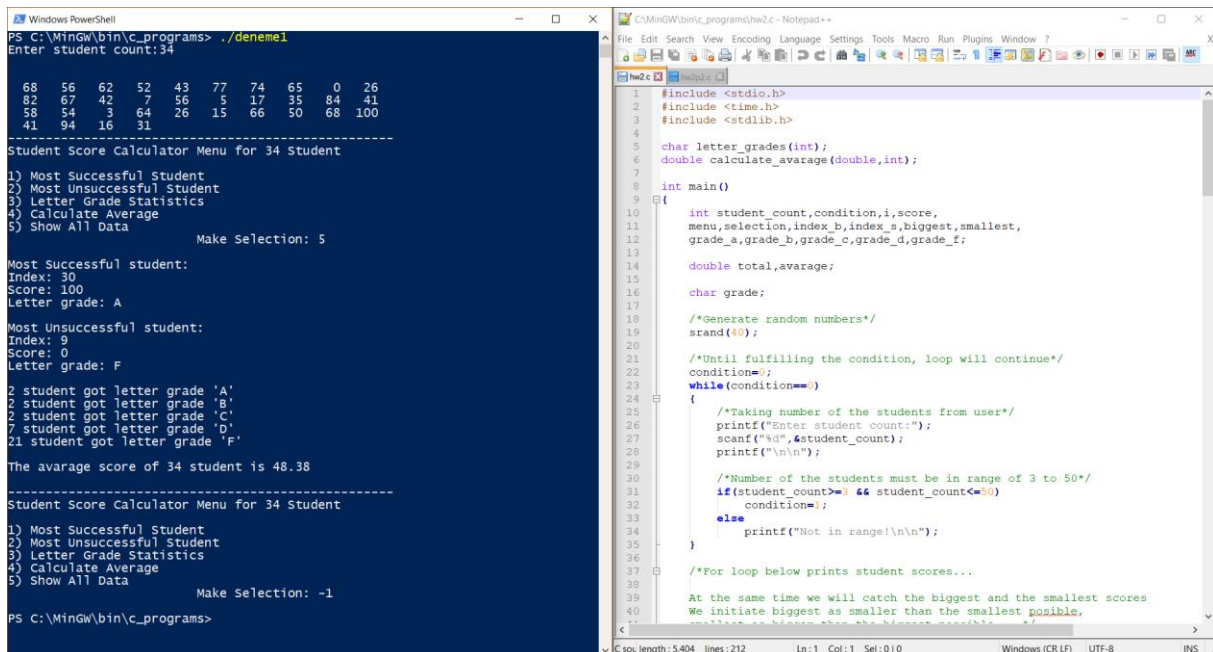


PART 1



The screenshot shows two windows. The left window is a Windows PowerShell terminal running a program named `deneme1`. It displays a grid of 34 student scores, a menu with options like 'Most Successful Student', 'Most Unsuccessful Student', 'Letter Grade Statistics', 'Calculate Average', and 'Show All Data'. The user has selected option 5, and the program outputs the average score of 48.38. The right window is a Notepad++ editor showing the C++ source code for `hw2c`. The code includes headers for `stdio.h`, `time.h`, and `stdlib.h`. It defines functions for calculating letter grades and averages. The `main` function generates random numbers, takes user input for the number of students, and uses a `while` loop to calculate and display statistics.

```
PS C:\MinGW\bin\c_programs> ./deneme1
Enter student count:34

68 56 62 52 43 77 74 65 0 26
82 67 42 7 56 5 17 35 84 41
58 54 3 64 26 15 66 50 68 100
41 94 16 31

-----
Student Score Calculator Menu for 34 Student
1) Most Successful Student
2) Most Unsuccessful Student
3) Letter Grade Statistics
4) Calculate Average
5) Show All Data
Make Selection: 5

Most Successful student:
Index: 30
Score: 100
Letter grade: A

Most Unsuccessful student:
Index: 9
Score: 0
Letter grade: F

2 student got letter grade 'A'
2 student got letter grade 'B'
2 student got letter grade 'C'
7 student got letter grade 'D'
21 student got letter grade 'F'

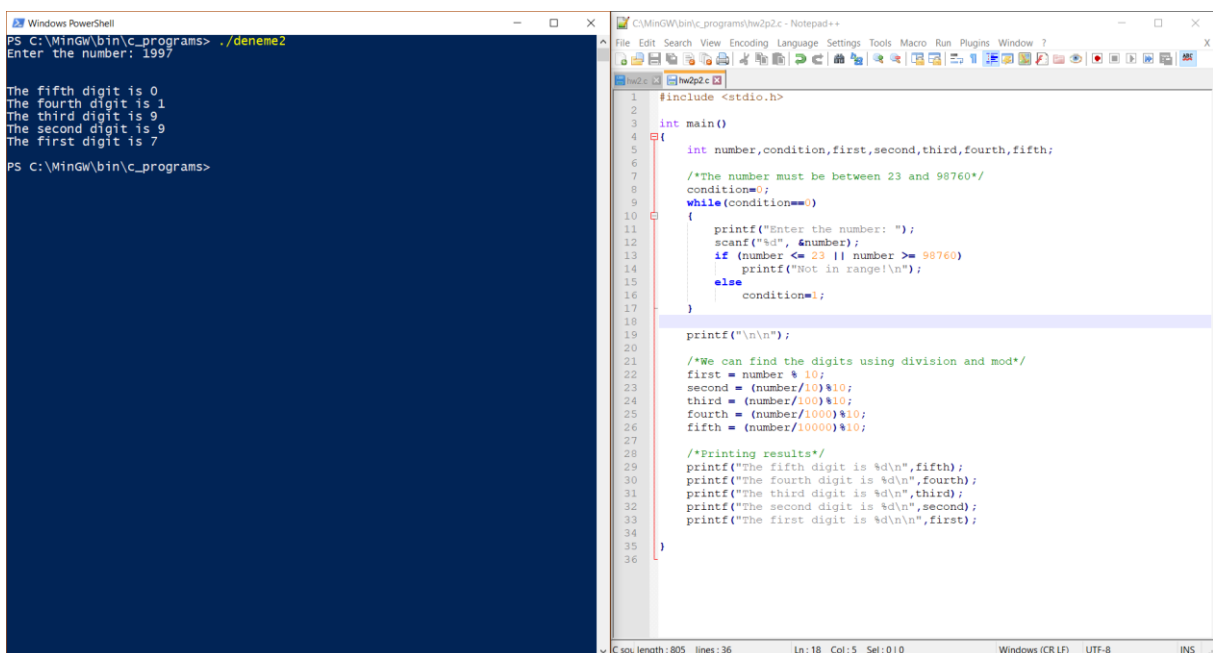
The average score of 34 student is 48.38

-----
Student Score Calculator Menu for 34 Student
1) Most Successful Student
2) Most Unsuccessful Student
3) Letter Grade Statistics
4) Calculate Average
5) Show All Data
Make Selection: -1

PS C:\MinGW\bin\c_programs>
```

```
1 #include <stdio.h>
2 #include <time.h>
3 #include <stdlib.h>
4
5 char letter_grades(int);
6 double calculate_average(double,int);
7
8 int main()
9 {
10     int student_count,condition,i,score,
11     menu,selection,index_b,index_s,biggest,smallest,
12     grade_a,grade_b,grade_c,grade_d,grade_f;
13
14     double total,average;
15
16     char grade;
17
18     /*Generate random numbers*/
19     srand(40);
20
21     /*Until fulfilling the condition, loop will continue*/
22     condition=0;
23     while(condition==0)
24     {
25         /*Taking number of the students from user*/
26         printf("Enter student count:");
27         scanf("%d",&student_count);
28         printf("\n\n");
29
30         /*Number of the students must be in range of 3 to 50*/
31         if(student_count>=3 && student_count<=50)
32             condition=1;
33         else
34             printf("Not in range!\n\n");
35     }
36
37     /*For loop below prints student scores...
38
39     At the same time we will catch the biggest and the smallest scores
40     We initiate biggest as smaller than the smallest possible,
41     smallest as bigger than the biggest possible*/
42
43     for(i=0;i<student_count;i++)
44     {
45         score=rand()%100;
46         printf("%d\t",score);
47         if(i%10==9)
48             printf("\n");
49     }
50
51     printf("\n\n");
52
53     /*Calculating average and letter grades*/
54     for(i=0;i<student_count;i++)
55     {
56         grade=letter_grades(score);
57         total+=score;
58     }
59     average=total/student_count;
60     printf("The average score of %d student is %.2f\n",student_count,average);
61
62     /*Menu for user selection*/
63     menu=1;
64     while(menu!=0)
65     {
66         printf("Student Score Calculator Menu for %d Student\n",student_count);
67         printf("1) Most Successful Student\n");
68         printf("2) Most Unsuccessful Student\n");
69         printf("3) Letter Grade Statistics\n");
70         printf("4) Calculate Average\n");
71         printf("5) Show All Data\n");
72         printf("Make Selection: ");
73         scanf("%d",&selection);
74
75         switch(selection)
76         {
77             case 1:
78                 index_b=0;
79                 for(i=0;i<student_count;i++)
80                 {
81                     if(score[i]>index_b)
82                         index_b=score[i];
83                 }
84                 printf("Most Successful student:\n");
85                 printf("Index: %d\n",index_b);
86                 printf("Score: %d\n",score[index_b]);
87                 printf("Letter grade: %c\n",letter_grades(score[index_b]));
88
89                 break;
90             case 2:
91                 index_s=100;
92                 for(i=0;i<student_count;i++)
93                 {
94                     if(score[i]<index_s)
95                         index_s=score[i];
96                 }
97                 printf("Most Unsuccessful student:\n");
98                 printf("Index: %d\n",index_s);
99                 printf("Score: %d\n",score[index_s]);
100                printf("Letter grade: %c\n",letter_grades(score[index_s]));
101
102                break;
103            case 3:
104                for(i=0;i<student_count;i++)
105                {
106                    grade=letter_grades(score[i]);
107                    printf("%d student got letter grade '%c'\n",i,grade);
108                }
109                break;
110            case 4:
111                average=calculate_average(total,student_count);
112                printf("The average score of %d student is %.2f\n",student_count,average);
113                break;
114            case 5:
115                for(i=0;i<student_count;i++)
116                {
117                    printf("%d\t",score[i]);
118                    if(i%10==9)
119                        printf("\n");
120                }
121                printf("\n\n");
122                break;
123            default:
124                printf("Invalid selection!\n");
125                break;
126        }
127        printf("Menu for user selection\n");
128        printf("1) Most Successful Student\n");
129        printf("2) Most Unsuccessful Student\n");
130        printf("3) Letter Grade Statistics\n");
131        printf("4) Calculate Average\n");
132        printf("5) Show All Data\n");
133        printf("Make Selection: ");
134        scanf("%d",&menu);
135    }
136}
```

PART 2



The screenshot shows two windows. The left window is a Windows PowerShell terminal running a program named `deneme2`. It prompts the user to enter a number (1997) and then outputs the digits of the number from fifth to first: 0, 1, 9, 9, 7. The right window is a Notepad++ editor showing the C++ source code for `hw2p2c`. The code includes `stdio.h` and defines a `main` function that takes a number as input, checks if it is within the range 23 to 98760, and then uses division and modulus operations to extract and print each digit.

```
PS C:\MinGW\bin\c_programs> ./deneme2
Enter the number: 1997

The fifth digit is 0
The fourth digit is 1
The third digit is 9
The second digit is 9
The first digit is 7

PS C:\MinGW\bin\c_programs>
```

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int number,condition,first,second,third,fourth,fifth;
6
7     /*The number must be between 23 and 98760*/
8     condition=0;
9     while(condition==0)
10     {
11         printf("Enter the number: ");
12         scanf("%d",&number);
13         if (number <= 23 || number >= 98760)
14             printf("Not in range!\n");
15         else
16             condition=1;
17     }
18
19     printf("\n\n");
20
21     /*We can find the digits using division and mod*/
22     first = number % 10;
23     second = (number/10)%10;
24     third = (number/100)%10;
25     fourth = (number/1000)%10;
26     fifth = (number/10000)%10;
27
28     /*Printing results*/
29     printf("The fifth digit is %d\n",fifth);
30     printf("The fourth digit is %d\n",fourth);
31     printf("The third digit is %d\n",third);
32     printf("The second digit is %d\n",second);
33     printf("The first digit is %d\n",first);
34
35 }
36
```