1. Write a program that inputs 10 integers one by one and finds and displays the number of their digits. For this purpose, use function `find()` that receives an integer and finds and displays number of its digits as given in the sample run.

   **Sample Run:**
   Enter an integer: 234
   It has 3 digits.
   Enter an integer: 9876
   It has 4 digits.
   .......

2. Write a program that gets user input (n) and finds the value of F according to the following table:

   \[
   F(n) = \begin{cases} 
   1 + \frac{1}{3} + \frac{1}{5} + \ldots + \frac{1}{2n+1} & n \geq 30 \\
   2 + 4 + \ldots + 2\lfloor n \rfloor & 10 < n < 30 \\
   n! & 0 < n \leq 10 
   \end{cases}
   \]

   Function `main()` inputs integer n and finds and displays F (n) on the screen. For this purpose use functions `f1()`, `f2()` and `f3()`. Each function receives an integer as a parameter and finds and returns the value of each expression given above under function name.

3. Write a program that inputs 10 real numbers, one at a time. Program finds and displays integral and decimal part of each number using function `compute()`. `compute()` receives a real number, finds and returns its integral and decimal parts under parameters.

   **Sample Run:**
   Enter a real number: 23.45
   23.0 and 0.45
   Enter a real number: 99.123
   99.0 and 0.123
   .......

4. Write a program that inputs a four digit integer, it finds and displays its first two and last two digits. Use function `digit()` that receives an integer value and returns its first and last two digits through parameters.
5. Your instructor needs a program that can input three test scores and compute the average score and the letter grade. The grading policy is:

Test-1: 25%
Test-2: 35%
Test-3: 40%

and

<table>
<thead>
<tr>
<th>Average Score</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>0-59</td>
<td>F</td>
</tr>
</tbody>
</table>

This program should input test scores for any number of students and stop the input if any of the test scores is negative.

Also, the instructor wants to see the class grade point average, the letter grade distribution and the vertical bar chart of the letter grades.

In your program use the following functions that you will write:

- A function that receives three test scores and returns the letter grade of a student under function name.
- Another function that receives the number of each letter grade and returns the class grade point average under a parameter.
  
  \[
  \text{class\_grade\_point\_average} = \frac{4 \times \text{number\_of\_A\_grade} + 3 \times \text{number\_of\_B\_grade} + 2 \times \text{number\_of\_C\_grade} + 1 \times \text{number\_of\_D\_grade} + 0 \times \text{number\_of\_F\_grade}}{\text{total\_number\_of\_grades}}
  \]

- The last function should receive one of the letter grades and the number of this grade and output the segment of bar chart corresponding to that letter grade.

**Sample run:**

Enter three test scores: 75 88 70
Your average is 77.50
Your letter grade is C.

Enter three test scores: 95 80 85
Your average is 85.75
Your letter grade is B.
.
.
Enter three test scores: 75 -45 90
Number of A grades:  2
Number of B grades:  4
Number of C grades:  7
Number of D grades:  5
Number of F grades:  1

Total number of students: 19
Class average: 2.05

BAR CHART:

```
|**
A |**
 |**
 |****
B |****
 |****
 |********
C |********
 |******
 |*****
D |*****
 |*****
 |*
F |*
 |* 
```