**Introduction to Programming (Hmw 2)**

Histogram is a representation of distribution of data. Distribution is given as the number of items in each bin where the bins are given as a set. For example, let us assume that the grades for an exam are the items for which the histogram/distribution is needed. And assume that the bins are the ranges given as {0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89, 90-100}. The ranges are consecutive. Histogram values would be the numbers of students in each bin; that is, the number of students that have 0-9, the number of students that have 10-19, etc.

Your job is to write a function that calculates histogram values (counts). The prototype of your function shall be

```c
void Histogram(int Data[], int N, int Bins[], int M, int Counts[]);
```

where
- `Data[]` : input data given in an array of integers (grades for example)
- `N` : the number of students/grades
- `Bins[]` : low end of the ranges of the bins. For example, for the 0-9 range it is 0.
- `M` : the number of bins (10 for the example given above)
- `Counts[]` : Number of students in each bin. For example `Counts[0]` will contain the number students that received a grade between 0 and 9 inclusive. Size of `Counts[]` is `M` too.

Test your function using 120 grades (`Data[]`) in the range 0-100 that are generated randomly in function `main()`. Initialize your `Bins[]` according to the example given above. Declare all your arrays in `main()`. Display the results (`Counts[]`) in `main()`.

Hint: For a uniform random data, all bins are expected to have counts close to others.

**Possibility of extra points:**

Generate random grades that shows a Gaussian (Bell shaped) distribution and get extra 20 points to be added to your total homework grades.

Hand in a single page program printout all in “Courier New” font size 11. Do not forget to put your name and number.

Write underneath the sheet “Kendi özgün çalısmamdır” with your own handwriting and sign it.

Hand them in before Monday 11:00. (slide in under the door, if I am not in)