02. Quiz

1. Prototypes

```
#ifndef HISTOGRAM
#define HISTOGRAM
typedef struct
{
    int length;
    int *elem;

} Histogram;
#endif

static Histogram *CreateHistogram(DataSet *dataSet, const int minLevel, const int maxLevel,
const int intervalLevel);
static void DestoryHistogram(Histogram *histogram);
static void PrintHistogram(Histogram *histogram, const int minLevel, const int maxLevel,
                           const int intervalLevel);
```

함수 **SortQuick** 는 함수 **CreateHistogram** 내에서 호출

```
static void SortQuick(EType *dataSet, const int posLeft, const int posRight);
static void Swap(EType *src, EType *dst);
```

- **Main: Main.c**

```
int main(int argc, char *argv[])
{
    DataSet *setData = NULL;
    Histogram *histogram = NULL;

    setData = ReadData(PATH_FILE);
    PrintData(setData);
    printf("\n");

    histogram = CreateHistogram(setData, 40, 80, 5);
    if (!histogram)
    {
        abort();
    }

    PrintHistogram(histogram, 40, 80, 5);
    printf("\n");

    DestoryHistogram(histogram);
    DestoryData(setData);
    return 0;
}
```
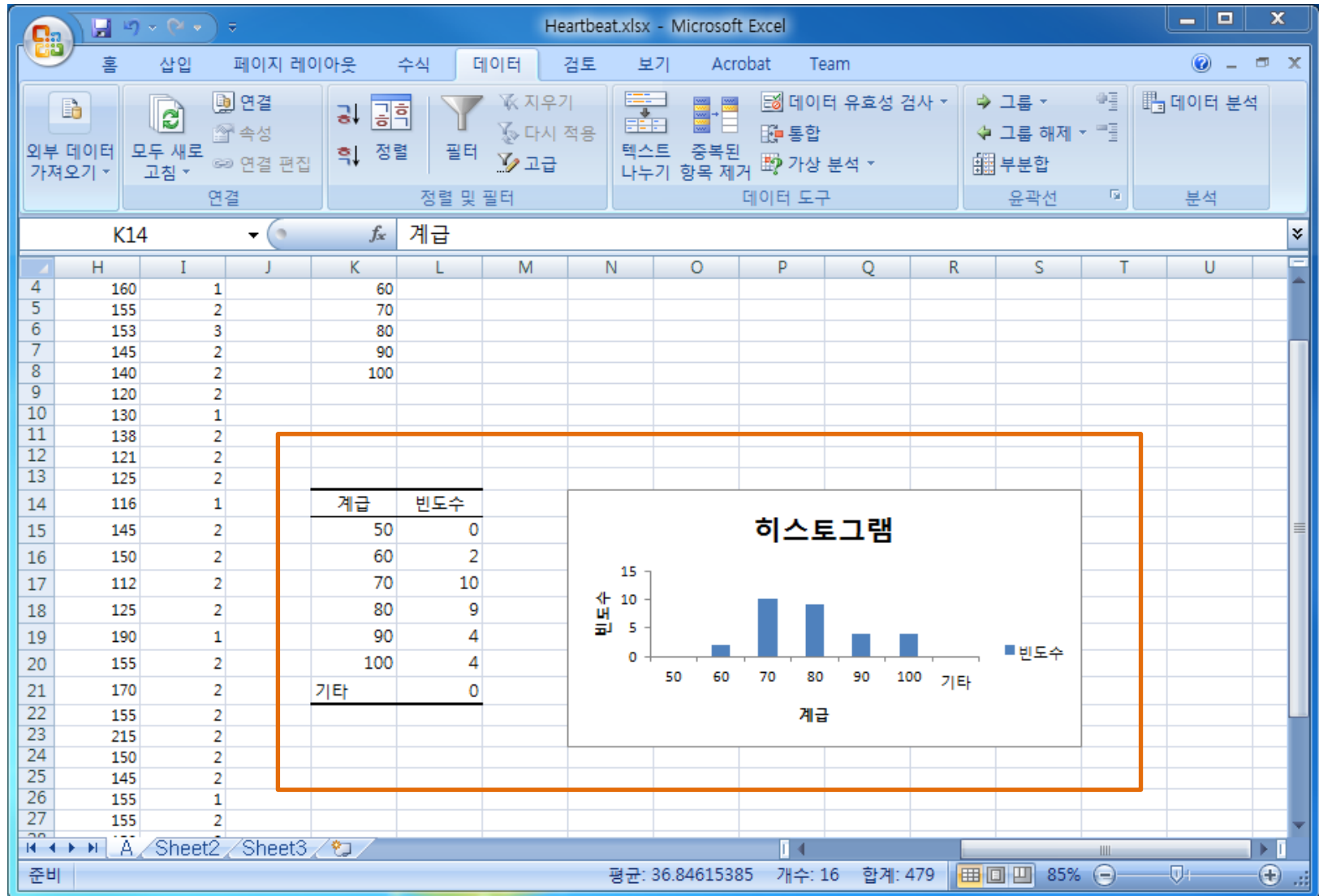
- Histogram using Excel

1. **Data : "Sample.dat"**

```
histogram = CreateHistogram(setData, 30, 90, 10);
```

```
65 62 73 85 65 46 36 49 81 76
60 44 43 72 32 33 83 46 64 49
12 74 91 78 60 48 24 62 54 97
69 31 89 96 96 97 86 88 85 61
95 54 85 89 51 77 81 72 47 35
102 103

12 24 31 32 33 35 36 43 44 46
46 47 48 49 49 51 54 54 60 60
61 62 62 64 65 65 69 72 72 73
74 76 77 78 81 81 83 85 85 85
86 88 89 89 91 95 96 96 97 97
102 103
      Level :   Freq'
---------------------------------------------------
   30(  2) : **
   40(  5) : *****
   50(  8) : ********
   60(  5) : *****
   70(  7) : *******
   80(  7) : *******
   90( 10) : **********
  etc(  8) : ********

계속하려면 아무 키나 누르십시오 . . .
```

1. Data : "Sample.dat"

histogram = CreateHistogram(setData, 40, 80, 10);

```
5 10 52

65 62 73 85 65 46 36 49 81 76
60 44 43 72 32 33 83 46 64 49
12 74 91 78 60 48 24 62 54 97
69 31 89 96 96 97 86 88 85 61
95 54 85 89 51 77 81 72 47 35
102 103

12 24 31 32 33 35 36 43 44 46
46 47 48 49 49 51 54 54 60 60
61 62 62 64 65 65 69 72 72 73
74 76 77 78 81 81 83 85 85 85
86 88 89 89 91 95 96 96 97 97
102 103
      Level :   Freq'
  ---------------------------------------------------
    40(   7) : *******
    50(   8) : ********
    60(   5) : *****
    70(   7) : *******
    80(   7) : *******
   etc( 18) : ******************

계속하려면 아무 키나 누르십시오 . . .
```

1. Data : "Sample.dat"

```
histogram = CreateHistogram(setData, 40, 80, 5);
```

```
95 54 85 89 51 77 81 72 47 35
102 103

12 24 31 32 33 35 36 43 44 46
46 47 48 49 49 51 54 54 60 60
61 62 62 64 65 65 69 72 72 73
74 76 77 78 81 81 83 85 85 85
86 88 89 89 91 95 96 96 97 97
102 103
      Level :    Freq'
 ---------------------------------------------------------
    40(   7) : *******
    45(   2) : **
    50(   6) : ******
    55(   3) : ***
    60(   2) : **
    65(   6) : ******
    70(   1) : *
    75(   4) : ****
    80(   3) : ***
   etc( 18) : ******************

계속하려면 아무 키나 누르십시오 . . .
```