#include <stdio.h>

#include <stdlib.h>

void create\_bins(float min\_meas ,float max\_meas ,float bin\_maxes[] , int bin\_counts[] , int bin\_count);

int find\_bin( float data, float bin\_maxes[], int bin\_count,float min\_meas );

int main() {

int bin\_count, i, bin;

float min\_meas, max\_meas;

float \*bin\_maxes;

int \*bin\_counts;

int data\_count;

float \*data;

printf(" Enter the number of elements ;");

scanf("%d",&data\_count);

printf("ENter the minmum and maximum element");

scanf("%f%f",&min\_meas,&max\_meas);

printf("enter the bincount ");

scanf("%d",&bin\_count);

printf("enter the %d elements", data\_count);

data= malloc(data\_count\*sizeof(float));

bin\_maxes=malloc(bin\_count\*sizeof(float));

bin\_counts=malloc(bin\_count\*sizeof(int));

for (i=0;i<data\_count;i++)

{

scanf("%f",&data[i]);

}

create\_bins(min\_meas, max\_meas, bin\_maxes, bin\_counts, bin\_count);

for (i = 0; i < data\_count; i++) {

bin = find\_bin(data[i], bin\_maxes, bin\_count, min\_meas);

bin\_counts[bin]++;

}

for (i = 0; i < bin\_count; i++)

{

printf("bin %d=%d\n",i+1,bin\_counts[i]);

}

}

void create\_bins(float min\_meas,float max\_meas, float bin\_maxes[], int bin\_counts[],int bin\_count)

{

float bin\_range;

int i;

bin\_range = (max\_meas - min\_meas)/bin\_count;

for (i = 0; i < bin\_count; i++) {

bin\_maxes[i] = min\_meas + (i+1)\*bin\_range;

bin\_counts[i] = 0;

}

}

int find\_bin( float data,float bin\_maxes[] , int bin\_count ,float min\_meas )

{

int bottom = 0, top = bin\_count-1;

int mid;

float bin\_max, bin\_min;

while (bottom <= top) {

mid = (bottom + top)/2;

bin\_max = bin\_maxes[mid];

bin\_min = (mid == 0) ? min\_meas: bin\_maxes[mid-1];

if (data > bin\_max)

bottom = mid+1;

else if (data < bin\_min)

top = mid-1;

else

return mid;

}

}