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#include <stdio.h>
#include <stdlib.h>
#include <time.h>
```

```
int hist(int* data, int value, int accum);    1. Function Prototype Declaration
```

```
int main()
{
    int i, value;
    int sum = 0;
    int hits = 0;
    int data[10]= {0,0,0,0,0,0,0,0,0,0};    Array declaration and initialization

    srand(time(NULL));    Initialize Random Number Generator

    for (i=0; i<10000000; i++)
    {
        value = rand() % 10;    generate random number from 0-9
        sum = hist(data, value, sum );    2. Call the histogram function
    }

    printf("Histogram values:\n");
    for (i=0; i<10; i++)
    {
        printf("Bin %d=%d\n",i,data[i]);    Print the value of each array element
        hits = hits + data[i];
    }
    printf("Sum=%d, Total hits= %d, Average=%f\n",sum,hits, (float)sum/hits);

    return 0;
}
```

```
int hist(int* data, int value, int accum)    3. Function definition with code
{
    data[value] ++;    dereference array element and increment
    return accum + value;    add calling parameters and return their sum
}
```