#include<stdio.h>

#include<iostream>

#include<ctime>

#include<cstdlib>

#include<time.h>

#include<fstream>

using namespace std;

int s[1001];

int search(int arr[], int l, int r, int x,int d)

{ int i;

if (r >= l)

{

int mid = l + (r - l)/d;

for(i=1;i<d;i++)

{

if (arr[i\*mid] == x)

return mid;

}

for(i=1;i<d;i++)

{

if (arr[i\*mid] > x)

return search(arr, l,i\*mid-1, x,d);

return search(arr,i\*mid+1, r, x,d);}

}

return -1;

}

void quicksort(int array[], int firstIndex, int lastIndex)

{

int pivotIndex, temp, index1, index2;

if(firstIndex < lastIndex)

{

pivotIndex = firstIndex;

index1 = firstIndex;

index2 = lastIndex;

while(index1 < index2)

{

while(array[index1] <= array[pivotIndex] && index1 < lastIndex)

index1++;

while(array[index2]>array[pivotIndex])

index2--;

if(index1<index2)

{ temp = array[index1];

array[index1] = array[index2];

array[index2] = temp;

}

} temp = array[pivotIndex];

array[pivotIndex] = array[index2];

array[index2] = temp;

quicksort(array, firstIndex, index2-1);

quicksort(array, index2+1, lastIndex);

}

}

int main()

{

ofstream infile("graphnik.csv");

int i,nik,key,l,r,d,n,k,p;

double sum;

double cpu\_time\_used;

for(d=2;d<=4;d++)

{ printf("\*\*\*\*\*%d\*\*\*\*\*\*\n\n\n",d);

for(n=50;n<100;n++)

{ sum=0;

for(p=1;p<1000;p++)

{

for(i=0;i<n;i++)

s[i]=rand()%10000;

quicksort(s,0,n-1);

key=rand()%10000;

l=0;r=n;

clock\_t start=0,end=0;

start=clock();

for(k=1;k<1000;k++)

search(s,l,r,key,d);

end=clock();

double time\_taken = ((double)(end-start))/CLOCKS\_PER\_SEC;

time\_taken=time\_taken/(double)1000;

sum=sum+time\_taken;

}

sum=sum/(double)1000;

infile<<d<<","<< n << "," << sum << ","<<"\n";

}

}infile.close();

}