**MARKS AWARDED: 100**

Well done ☺

/\* CS1010 AY2011/2 Semester 2 Lab4 Ex1

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\* estimatePi.c

\* This program reads in a list of n distinct integers and

\* computes the estimate value for pi.

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\* B02

\*/

#include <stdio.h>

#include <math.h>

#define MAX 50

// function prototypes

double pi(int [], int);

int gcd(int, int);

int main(void)

{

int i, size, arr[MAX];

scanf("%d", &size);

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

scanf("%d", &arr[i]);

/\* Check array input

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

printf("%d:%d ",i,arr[i]);

printf("\n");

\*/

printf("Estimated pi = %.4f\n", pi(arr,size));

return 0;

}

// Compute the estimated value of pi

double pi(int arr[], int size)

{

int i,j,

count\_pair = 0,

total\_pair = 0;

for (i=0;i<size-1;i++)

{

for (j=i;j<size-1;j++)

{

if (gcd(arr[i],arr[j+1])==1)

count\_pair++;

total\_pair++;

//printf("%d:count=%d, total=%d\n", i, count\_pair, total\_pair);

}

}

return sqrt(6.0\*total\_pair/count\_pair);

}

// Find the greatest common divisor between two numbers

int gcd(int a,int b)

{

int i,num,greatest=1;

num = fmin(a,b);

for (i=2;i<=num;i++)

if(!(a%i)&&!(b%i))

greatest=i;

//printf("gcd(%d,%d):%d\n",a,b,greatest);

return greatest;

}