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/** Άσκηση 1η **/
#include <stdio.h>

float fractionAddition(int nominatorX, int
    denominatorX, int nominatorY, int
    denominatorY){
    int temp1, temp2;
    temp1 = (nominatorX * denominatorY) +
        (nominatorY * denominatorX);
    temp2 = denominatorX * denominatorY;
    return ( (float) temp1 / (float) temp2 );
}

int main() {
    int a = 0, b = 0, c = 0, d = 0, e = 0, f = 0 ;
    float ab = 0.0;

    printf("adding c/d + e/f... \n ");
    printf("give me four integers: c, d, e and f (and
        use spaces between them)... \n ");
    scanf("%d %d %d %d", &c, &d, &e, &f);
    if (d == 0 || f == 0)
        printf(" error, can't devide with 0! \n");
    printf ("\n a/b = %d/%d + %d/%d = %.4f \n\n",
        c, d, e, f, fractionAddition(c, d, e, f));
}

/** Άσκηση 2η **/
/** One inch is 2.54 cm and one foot is 12 inches,
    i.e., 30.48 cm**/
#define CM_OF_PODI 30.48
#include <stdio.h>

void metatroph(float cm, float *inches, int *feet){
    float f;

    f = cm / (CM_OF_PODI);
    *feet = (int)f;
    *inches = (f-(float)*feet)*12.0;
    return ;
}

int main() {
    float ekatosta = -1.0, intses = 0.0;
    int podia;

    printf("give me the length in cm... \n ");
    while (ekatosta <= 0.0)
        scanf("%f", &ekatosta);

    metatroph(ekatosta, &intses, &podia);
    printf ("%4.3f cm correspond to %d feet and
        %.3f inches \n\n", ekatosta, podia, intses);
}

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/** Άσκηση 3η **/
#include <stdio.h>
#include <stdlib.h>
#define N 100

float average(int n, float x[]);
float giveMeRand(float max, float min);

int main()
{
    float x[N], x2[N], meshTimh, sigma2;
    int i;

    srand( (unsigned)time( NULL));
    for (i = 0; i < N; i++){
        x[i] = giveMeRand( 1.0, -1.0);
        x2[i] = x[i] * x[i];
        //printf (" %.4f; ", x[i]);
        // an thelw na emfanizontai oloi
        if (i%10 == 0) printf (" %.4f, \n", x[i]);
        // thelw na emfanizontai mono 10
    }

    meshTimh = average(N, x);
    sigma2 = average(N, x2) -
        meshTimh*meshTimh;

    printf ("\n\n H diaspora einai: %f \n\n",
        sigma2);
}

float average(int n, float x[])
    // dinei meso oro apo n arithmoys float
{
    int i;
    float sum = 0.0;
    for (i = 0; i < n; i++)
        sum += x[i];
    return sum/N;
}

float giveMeRand(float max, float min)
    // dinei tyxaio arithmo float sto [min, max]
{
    float r = 0.0;
    // returns a random float in sto [0,1]
    r = (float)rand()/(float)RAND_MAX;
    // converts it to [min,max]
    r = r * (max-min) + min;
    return r;
}

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