PDS Assignment 3
Section 13
Date: 23.12.2021

Question

The infinite series for $\cos(x)$:
$$\cos(x) = 1 - x^2/2! + x^4/4! - x^6/6! + \ldots\ldots\ldots;$$
where x is a floating point number.

Write a C program which does the following:
1(a) Takes in 3 floating point numbers x,y,z and a positive integer n.
 (b) The program then keeps reading floating point numbers from the keyboard till it gets a floating point number a, $-1 < a < 1$,
 (c) It then continues to read floating point numbers till it gets a floating point number b, $-0.5 < b < 0.5$.
2. (a) The program then computes $\cos(x)$, $\cos(y)$, $\cos(z)$ upto n terms of the infinite series.
    (b) It also computes $\cos(a)$ and $\cos(b)$ using the infinite series, upto terms having magnitude 10^{-5}, and remembers for each a and b the number of terms that had to be computed.
3. (a) The program then prints $\cos(x)$, $\cos(y)$, $\cos(z)$ calculated upto n terms.
    (b) It also prints $\cos(a)$, $\cos(b)$ calculated upto terms with magnitude 10^{-5}, as well as the number of terms that had to be calculated for each of a and b.