SEP

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First Deliverable

1 Description

Beta function also known as Eular Integral is defined by $B(x,y) = \int_0^1 t^{x-1}(1-t)^{y-1}\,dt\ for\ Re x > 0, Re y > 0. Jacques Binet gave this name to the function. B is used to represent the Beta function. Beta distribution describes the uncertainty of true values or probability distribution.$

1.1 Domain and co-domain

Domain is positive real numbers Co-Domain is - to +

1.2 Characteristics

Characteristics that make it unique 1.Beta function is symmetric means that $B(x,y) = B(y,x). 2. Another key property is its relation to gamma function which is described as follows:$ $B(x,y) = \dfrac{\Gamma(x)\,\Gamma(y)}{\Gamma(x+y)}.$

Functional requirements

Requirement of function based on style given in the ISO/IEC/IEEE 29148. Requirement 1-First the input values of constants x and y should be taken by system. Requirement 2-If the input values are negative values,message of error should be displayed. Requirement 3-If the values are not the real numbers ,message of error should be displayed. Requirement 4-If the range of the function is out of boundries from 0 to 1,output should be error ,message Requirement 5-If the outputs are not generated within specific time frame,message of error should be displayed

2 Unique identifiers

Unique identifier of requirement-Number

3   Assumptions

1.The values of x and y are non-negative numbers. 2.The values of x and y are real numbers. 3.Divisor should not be zero.

4   Pseudocode

This program calculates the beta function for given inputs
    function BetaFunction(Argument x,Argument y) Calculate the Beta Function value by dividing the ceilingProduct to ceilingDivisor
    return the Beta Function Value end
    function ceilingProduct(Argument x,Argument y) Calculate ceilingProduct values by calculating product of rounded off
values of arguements x and y to next integer value return ceilingProduct
    end
    function ceilingDivisor(Argument x,Argument y) Calculate the ceilingDivisor by rounding off the
sum of both arguments x and y to next integer value.
Return ceilingDivisor
    end In the main function
    print prompt "Input two numbers"
Take the input x and y
call the betaFunction with arguements as x and y

5   Advantages and Disadvantages

5.1   Advantages

1.-As program is divided into sub-functions its easy to program
it into real problem.
2.-As user defined values are used,so its easy to implement the program.

5.2   Disadvantages

1.-As the inputs are specified by the user,wide range of inputs can be missed.
2.-It uses bruteforce technique.