

SOEN6011 Project: Problem-2

Function: $B(x,y)$

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Functional Requirements for $B(x,y)$:

Requirement 1

- **ID** = R1
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = 2 variables, x and y are required for the function to be performed.
- **Rationale** = x and y

Requirement 2

- **ID** = R2
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = The variables x and y must be real positive numbers, meaning $x, y \in \mathbb{R}^+$ (Domain of the function)
- **Rationale** = $x > 0$, $y > 0$, and $x, y \in \mathbb{R}^+$

Requirement 3

- **ID** = R3
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = The results after applying the function to x and y must also be real positive numbers. (Co-Domain of the function)
- **Rationale** = $B(x,y) > 0$

Requirement 4

- **ID** = R4
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = The range of positive real variables is to remain between 0 and 1 for the integral form of the function.
- **Rationale** = $x, y \in (0, 1]$

Requirement 5

- **ID** = R5
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = The function must have no other inputs than x,y.
- **Rationale** = $x, y \in \mathbb{R}^+$

Requirement 6

- **ID** = R6
- **Version** = 1.0
- **Difficulty** = Easy
- **Description** = The input variables may or may not have distinct values
- **Rationale** = $x=y$ OR x