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Subject: Software Testing

Assignment: 02

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1. Problem Statement:

Your task is to create a simple rectangle class with a few functions in the class. The function isRectangle which takes 4 parameters and tell us whether given parameter form a rectangle or not. The parameters should be in range (1-30).

The function areaOfRectangle which takes 2 parameters and tell us area of rectangle. The parameters should be in range (1-30).

The function perimeterOfRectangle which takes 2 parameters and tell us perimeter of rectangle. The parameters should be in range (1-30).

Void isRectangle (int width1, int height1, int width2, int height2)

Void areaOfRectangle(int a,int b) width*height

Void perimeterOfRectangle(int a,int b) 2*(width+height)

2. isRectangleFunction

2.1 Identifying Causes and Effects

- All values should be in range 0-30.
- If height1 and height2 are same and width1 and width2 are same, shape is rectangle.
- If height1, height2, width1, width2 are same, shape is Square.
- If heights are same but widths are different, shape is not defined.
- If widths are same but heights are different, shape is not defined.

Causes	Effects
C1: width and height >=0 && <=30	
C2: (width1=width2)!=(height1=height2)	E1: Shape is Rectangle
C3: (width1=width2)==(height1=height2)	E2: Square
C4: (width1!=width2)	E3: Not defined
C5: (height1!=height2)	

2.2 Graph

- All values should be in range 0-30.
- If height1 and height2 are same and width1 and width2 are same, shape is rectangle.
- If height1, height2, width1, width2 are same, shape is Square.
- If heights are same but widths are different, shape is not defined.
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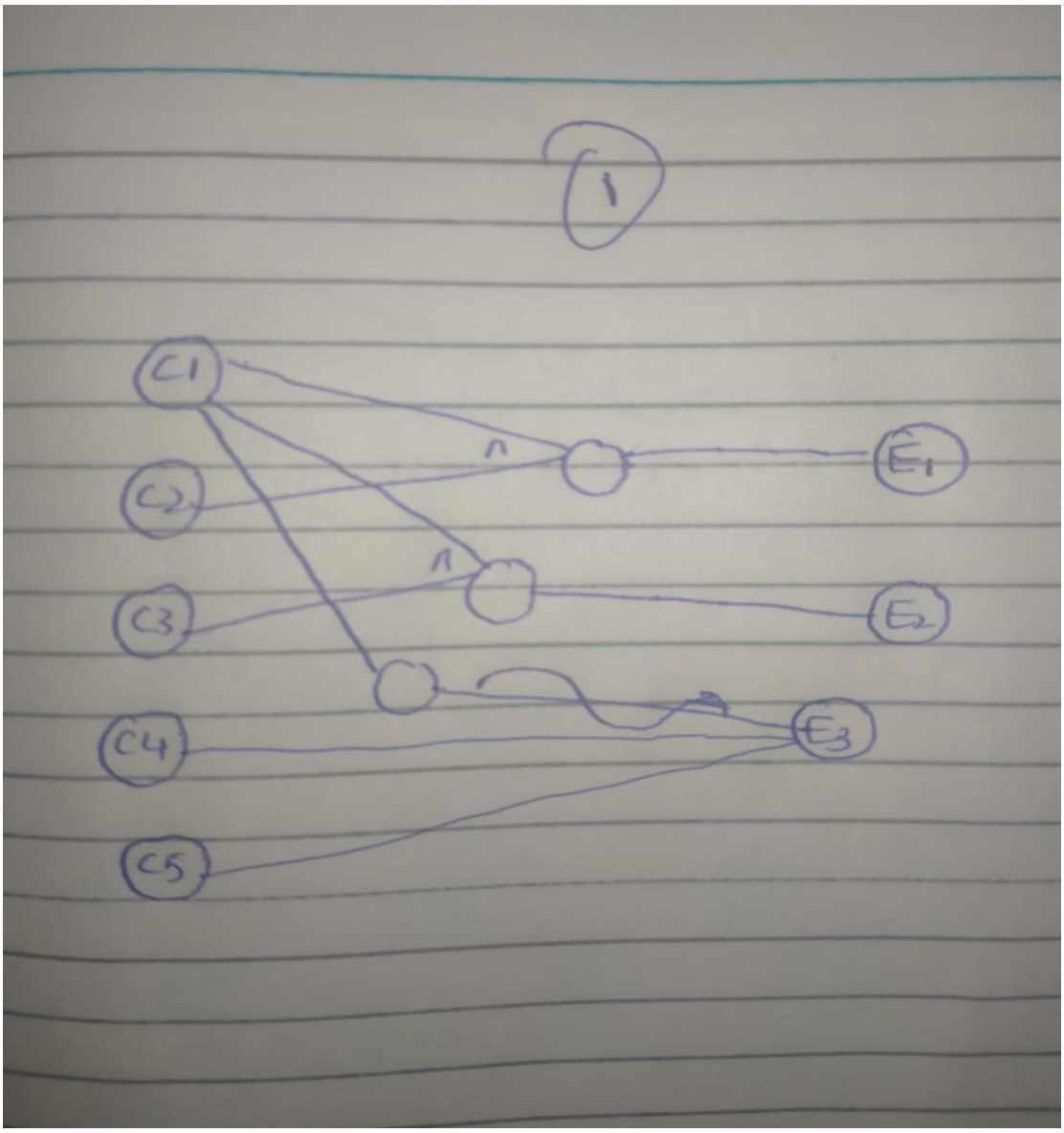

Figure 1: Cause and Effect Graph for IsRectanle Function

2.3 Decision Table

Cases	T1	T2	T3	T4	T5
C1	1	1	0	1	1
C2	1	0	0	0	0
C3	0	1	0	0	0
C4	0	0	0	1	0
C5	0	0	0	0	1
E1	1	0	0	0	0
E2	0	1	0	0	0
E3	0	0	1	1	1

2.4 Test Cases

Test	Width1	Height1	Width2	Height2	Output
1	10	20	10	20	Shape is Rectangle
2	10	10	10	10	Shape is Square
3	10	10	20	10	Not Defined
4	10	20	10	30	Not Defined
5	10	20	30	40	Not Defined

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3. AreaOfRectangle Function

3.1 Identifying Causes and Effects

- If width and height is in range 0-30 calculate area.
- If width is negative or height is negative, show not in limit.
- If width and height is equal calculate area.

Causes	**Effects**
C1: width >0 && width <=30	
C2: Height >0 && height <=30	E1: Calculate Area
C3: width=height	E2: Not in limit

3.2 Cause and Effect Graph

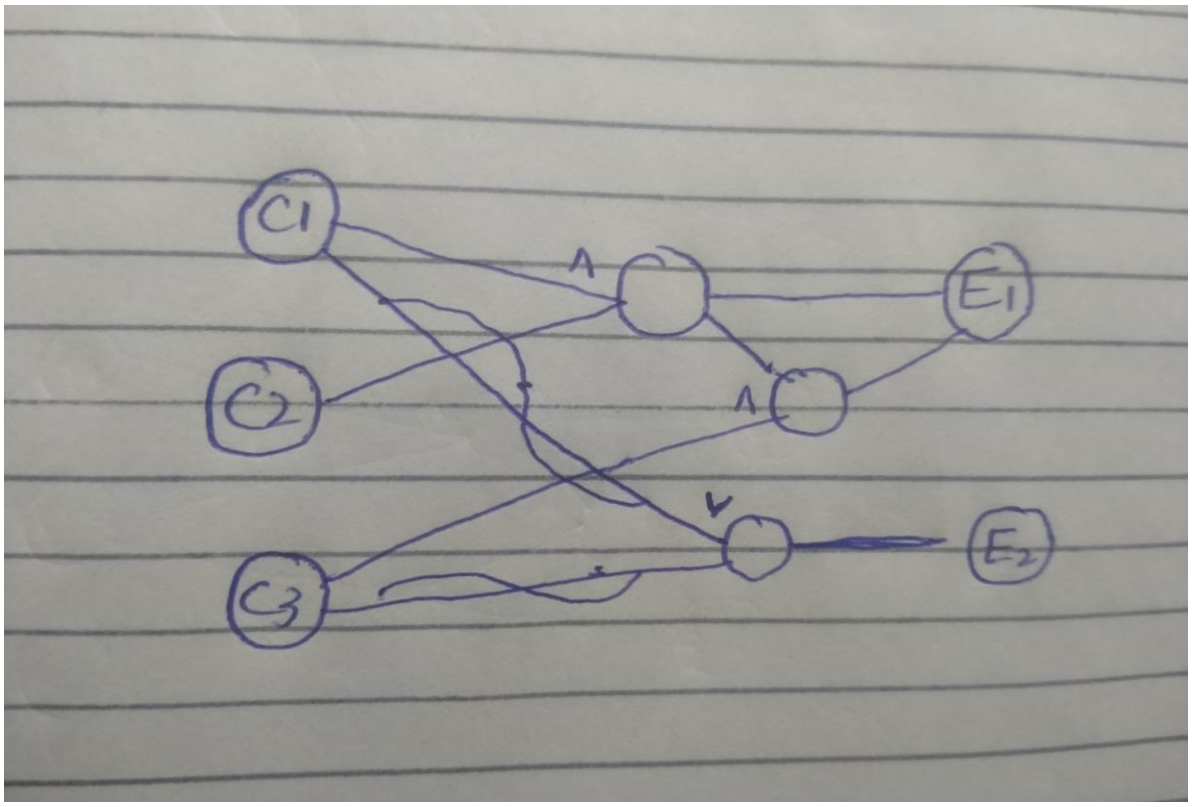

Figure 2: Cause and Effect graph for area function

3.3 Decision Table

Cases	T1	T2	T3	T4	T5
C1	1	1	0	1	0
C2	1	1	0	0	1
C3	0	1	0	0	0
E1	1	1	0	0	0
E2	0	0	1	1	1

3.4 Test Cases

TEST	Width	height	Output
T1	10	20	Area is calculated.
T2	10	10	Area is calculated.
T3	-5	10	Not in range
T4	10	-5	Not in range

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4. PerimeterOfRectangle Function:

4.1 Identifying Causes and Effects

- If width and height is in range 0-30 calculate area.
- If width is negative or height is negative, show not in limit.
- If width and height is equal calculate area.

Causes	Effects
C1: width >0 && width <=30	
C2: Height >0 && height <=30	E1: Calculate perimeter
C3: width=height	E2: Not in limit

4.2 Cause and Effect Graph

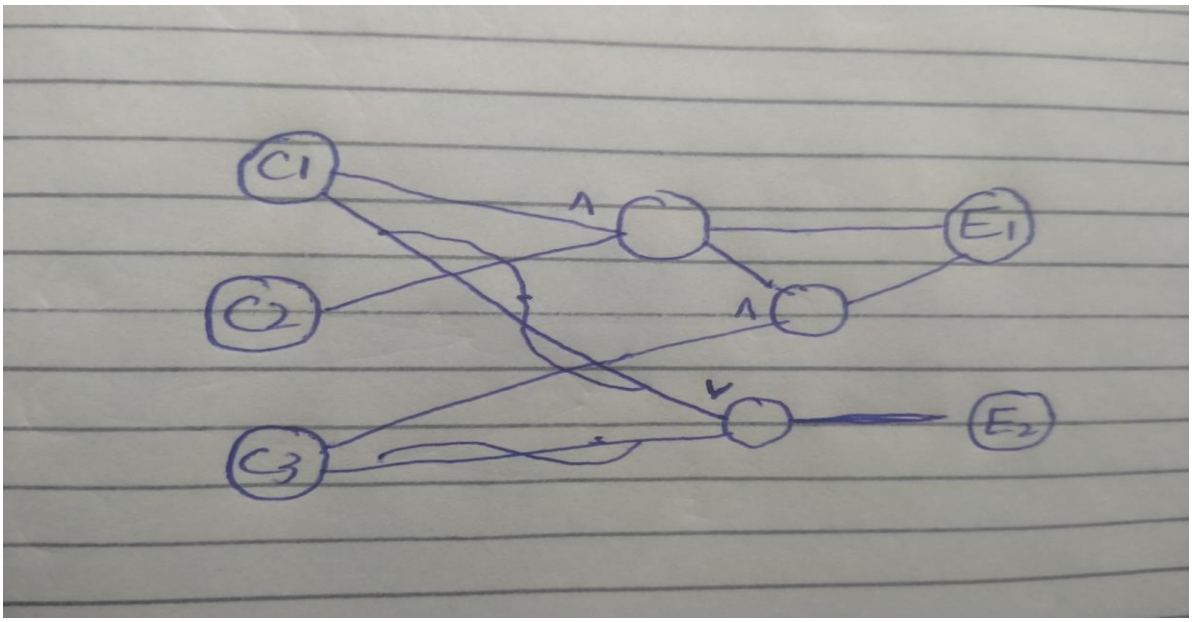

Figure 3: Cause and Effect graph for perimeter function

4.3 Decision Table

Cases	T1	T2	T3	T4	T5
C1	1	1	0	1	0
C2	1	1	0	0	1
C3	0	1	0	0	0
E1	1	1	0	0	0
E2	0	0	1	1	1

4.4 Test Cases

TEST	Width	height	Output
T1	10	20	perimeter is calculated.
T2	10	10	perimete is calculated.
T3	-5	10	Not in range
T4	10	-5	Not in range

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