**Artificial and Computational Intelligence**

**Assignment 2 - Problem Statement 5**

**Contributors**

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**2. Logic Design and Inferencing in Prolog**

We have designed the rules in Prolog. For each leaf node we must have a rule.

Since we made it interactive where we take the sensor reading based on previous sensor reading. For example. If a5 is false, we don’t need to have sensor reading from all 10 sensors. Same way sensor a3, a6 and a7 reading are not required to take decision.

The Decision tree given below,

A screenshot of a computer program

Description automatically generated

For testing we have used all the paths of decision tree which reaches to the leaf nodes

We have noted test cases below, and numbered the testcases we have 11 leaf nodes.

A diagram of a molecule

Description automatically generated with medium confidence

**Test 1:**

A5 = False

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**Test 2**

A5 = True, a8 = true and a1= true

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**Test 3**

A5= true, a8= false, a9= false, a2= false

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**Test 4**

A5=true, a8= false, a9 = true

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**Test 5**

A5 = true, a8=false, a9=false, a2=true,a0=true

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**Test 6**

A5 = true, a8=false, a9=false, a2=true,a0=false, a4=true

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**Test 7**

A5 = true, a8=false, a9=false, a2=true,a0=false, a4=false

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**Test 8**

A5 = true, a8= true, a1=false,a2=true,a4=true

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**Test 9**

A5 = true, a8= true, a1=false,a2=true,a4=false

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**Test 10**

A5 = true, a8= true, a1=false, a2=false, a0=true

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**Test 11**

A5 = true, a8= true, a1=false, a2=false, a0=false

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