



# SNS COLLEGE OF TECHNOLOGY

Coimbatore-35  
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



Build an Entrepreneurial Mindset Through Our Design Thinking Framework

## DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

### 23AMB201 - MACHINE LEARNING

II YEAR IV SEM

UNIT I – INTRODUCTION

TOPIC 6 - Decision Theory



# Decision Theory



Make optimal decisions in situations involving uncertainty

	Surgery Performed	Surgery Not Performed
Cancer Present (C1)	<b>Very Good</b> Score: 100%	<b>Very Bad</b> Score: 0%
Cancer Absent (C2)	<b>Not Good</b> 40%	<b>Good</b> 85%

**Scenario 1:** There is presence of cancer and the physician decides to perform a surgery. That is 100% because its the best decision to take.

**Scenario 2:** There is presence of cancer but the physician decides not to perform a surgery. That is a score of 0 as it is the worst case scenario and of course the consequences would be very serious.

**Scenario 3:** Cancer is absent but the physician decides to perform a surgery anyway.

This is a low score but does not result in any serious consequence

**Scenario 4:** Cancer is absent and the physician decides not to perform a surgery.

This is a good decision as well.



# References

1. Aurélien Géron "Hands-On Machine Learning with Scikit-Learn and TensorFlow" Publisher(s): O'Reilly Media, Inc 2017.
2. <https://www.geeksforgeeks.org/probability-theory/>
3. <https://www.analyticsvidhya.com/blog/2021/04/probability-theory-basics-in-machine-learning/>
4. <https://www.enjoymathematics.com/blog/probability-theory-for-machine-learning>

*Thank You*