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| Faculty of Computer & Information Sciences  Ain Shams University  Subject: (SCC 234)  Statistical Analysis and Applications  Year: (2nd year) undergraduate  Academic year: 2nd term 2019-2020 |  |

**Research Topic (1)**

**Title: Using Probability to Build Decision Trees for Classification**

**تحذير هام: علي الطالب عدم كتابة اسمه أو كتابة اي شيء يدل علي شخصيته**

**Decision Trees**

“The quality of decision is like the well-timed swoop of a falcon which enables it to strike and destroy its victim”

**Importance of Decision Trees:**

We can acquire two different wisdoms from this quote, that decisions must be well-timed that every aspect matters, and if the decision taken was not the optimal the victim might be you and that is why we have decision trees.

**What Are Decision Trees?**

Decision trees are a way to visualize all possible decisions along with their outcomes in order to understand all possible scenarios for better outcomes.

**Advantages and Disadvantages:**

* **Advantages:**
  + Trees are easily understandable to people.
  + Trees mirror man’s decision-making.
  + Trees have many forms including both flow and graphical forms.
  + Trees can easily handle qualitative predicators.
* **Disadvantages:**
  + Their Accuracy is lower than Regression and Classification approaches.
  + They are non-robust meaning a slight error in data can cause massive change in outcomes

The following will show evidently how important decision trees are and more importantly how to build them.