Inductive Learning in Artificial Intelligence

- Inductive Learning, also known as Concept Learning, is how A.I. systems attempt to use a generalized rule to carry out observations.
- Inductive Learning Algorithms (APIs) are used to generate a set of classification rules. These generated rules are in the "If this, then that" format.
- **The Fundamental Concept of Inductive Learning**
- There are two methods for obtaining knowledge in the real world: first, from domain experts, and second, from machine learning.
- Domain experts are not very useful or reliable for large amounts of data. As a result, we are adopting a machine learning approach for this project.

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Some practical examples of induction are:

Credit risk assessment.

- The x is the property of the customer.
- The f(x) is credit approved or not.

Disease diagnosis.

- The x is the characteristics of a given patient.
- The f(x) is the patient's disease.

Face recognition.

- The x are bitmaps of the faces we want to recognize.
- The f(x) is a name assigned to that face.

Cont…

Inductive Learning may be helpful in the following four situations:

- **Problems in which no human expertise is available**. People cannot write a program to solve a problem if they do not know the answer. These are areas ripe for exploration.
- **Humans can complete the task, but no one knows how to do it.** There are situations in which humans can do things that computers cannot or do not do well. Riding a bike or driving a car are two examples.
- **Problems where the desired function is frequently changing**. Humans could describe it and write a program to solve it, but the problem changes too frequently. It is not economical. The stock market is one example.
- **Problems where each user requires a unique function.** Writing a custom program for each user is not cost-effective. Consider Netflix or Amazon recommendations for movies or books.