Introduction to problem solving
Week 1 Lecture 1

Ankumon Sarmah

Assistant Professor

Centre for Computer Science and Applications

Dibrugarh University

What is a problem?

- A **problem** is a situation preventing something from being achieved
- Examples:
  - To go to school on a rainy day
  - The process of learning to ride bicycle
  - Check a number is prime or not
  - Choosing the perfect internet plan
  - Choosing the stream after H.S.L.C

Why Problem solving is important?

- You will never scared while facing a difficult situation in life.
- It will enhance your logical and analytical skill to tackle a problem.
- You will be able find out creative solutions to critical problem.
- It will help you in your personal as well as professional life.
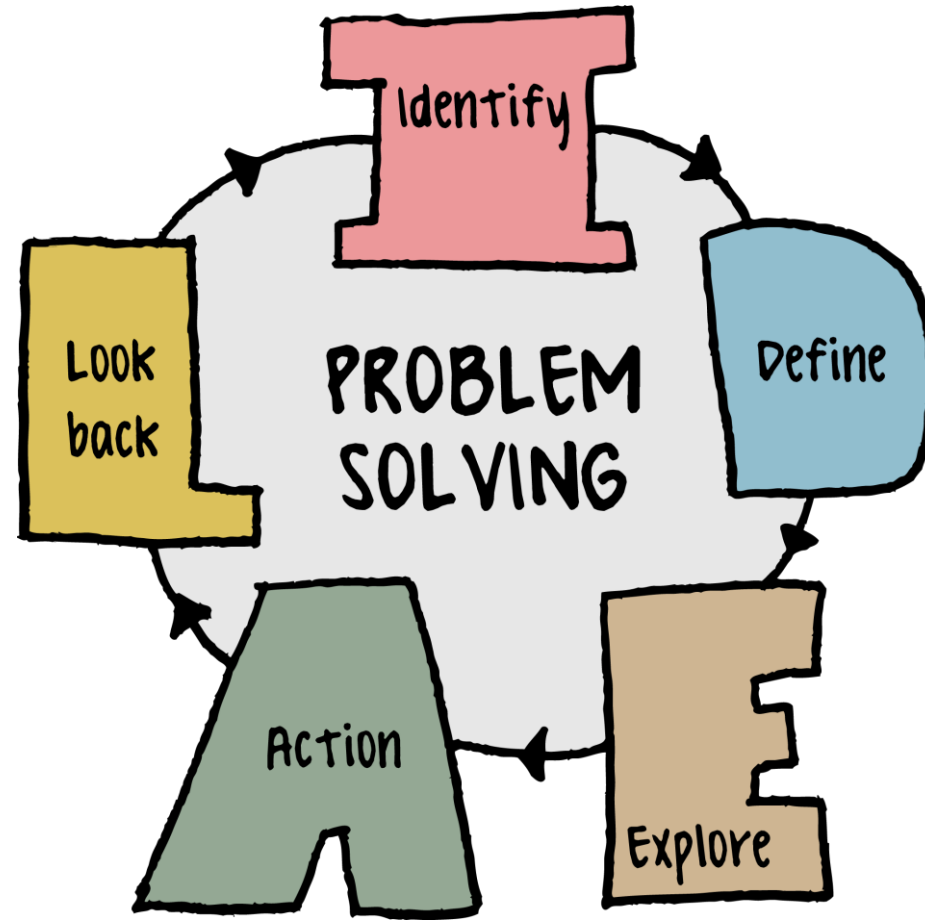- You will be able to guide others during difficult situation.

The process of solving problems

- The two common approach of solving problem are:
  - Algorithmic
  - Experimentation

Algorithmic approach

- **Algorithmic approach** is a defined set of step-by-step procedures that gives the correct answer to a particular problem.

- For example:
  - L.C.M of two numbers
  - Finding the shortest path
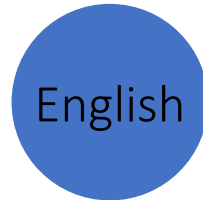
Experimentation approach : IDEAL

The three W's

- What's the problem?
- What's are the facts linked with the problem?
- What method to be taken to solve the problem?

Example…

- Find out the prime numbers between 1 and 10
  - 1st : You should know the properties of a prime number
  - 2nd : Procedure to check a number is prime or not
  - 3rd : Able to identify the factors of a number
  - 4th : Check for all the numbers between 1 and 10

Natural languages we use…

অসমীয়া

English

বাংলা

हिन्दी

How can I instruct the computer to solve a problem?

Solution

- Programming languages
- Scripting Languages

The "key" to problem solving..

Think Logically!

References

- *https://simple.wikipedia.org/wiki/Problem 13.03.2021*
- Bransford, J. & Stein, B.S. (). The Ideal Problem Solver: A Guide For Improving Thinking, Learning, And Creativity . New York, NY: W.H. Freeman