

**VASAVI COLLEGE OF ENGINEERING (Autonomous)**  
IBRAHIMBAGH, HYDERABAD – 500 031  
**Department of Computer Science & Engineering**

**INNOVATION IN TEACHING**

**Course Name:** Programming for Problem Solving

**Faculty Name:** Dr. V. Sireesha

**Topic Name:** Flow Charts

**Year/Semester:** I Semester

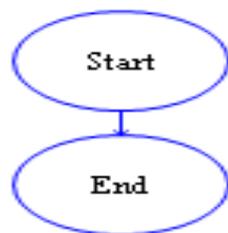
**Innovative teaching aid / tool used:** Raptor tool.

**Description of the tool:**

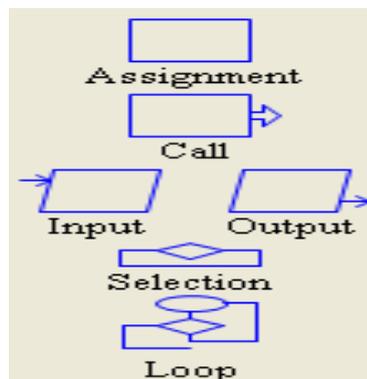
*RAPTOR* (Rapid Algorithmic Prototyping Tool for Ordered Reasoning) is a free visual programming development environment tool based on flowcharts, which helps students to visualize their algorithms. *RAPTOR* programs are created and executed by tracing the execution through the flowchart. Students are more successful in drawing flowcharts and creating algorithms using *RAPTOR* rather than using a traditional language.

*Purpose:* Usually students have to spend time struggling against the syntax of a specific programming language when they learn programming concepts, which distracts themselves from exploring the algorithm. If only flowchart is taught without programming, students cannot execute their flowchart, making them unable to justify their algorithm. *RAPTOR* solves the above difficulties by drawing flowcharts which can be executed. Therefore student can learn programming visually and easily, without suffering from the tedious syntax.

*Symbols in RAPTOR:*



*RAPTOR*  
*Structure:*



*Program*

### Tool usage in teaching:

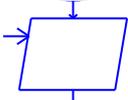
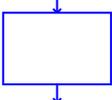
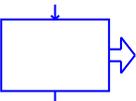
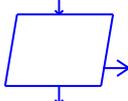
A RAPTOR program consists of connected symbols that represent actions to be executed.

1. The arrows that connect the symbols determine the order in which the actions are performed.
2. The execution of a RAPTOR program begins at the Start symbol and goes along the arrows to execute the program.
3. The program stops executing when the End symbol is reached.

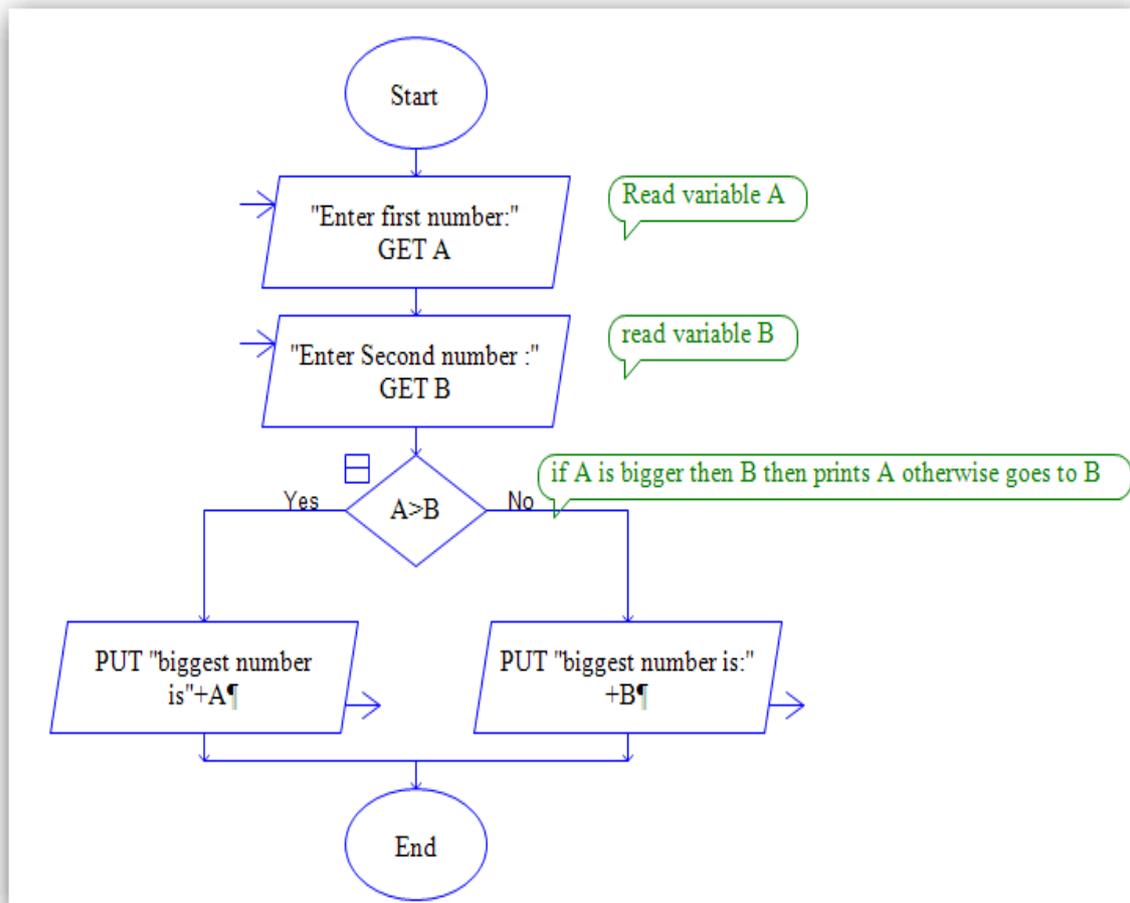
*The typical computer program has three basic components:*

- INPUT – get the data values that are needed to accomplish the task.
- PROCESSING – manipulate the data values to accomplish the task.
- OUTPUT – display (or save) the values which provide a solution to the task.

These three components have a direct correlation to RAPTOR instructions as shown in the following table.

Purpose	Symbol	Name	Description
INPUT		input statement	Allow the user to enter data. Each data value is stored in a <i>variable</i> .
PROCESSING		assignment statement	Change the value of a <i>variable</i> using some type of mathematical calculation.
PROCESSING		procedure call	Execute a group of instructions defined in the named procedure. In some cases some of the procedure arguments (i.e., <i>variables</i> ) will be changed by the procedure's instructions.
OUTPUT		output statement	Display (or save to a file) the value of a <i>variable</i> .

Problem: Finding the biggest number among two numbers



Flowchart to find the biggest number among two numbers

Reference:

<https://raptor.martincarlisle.com/>