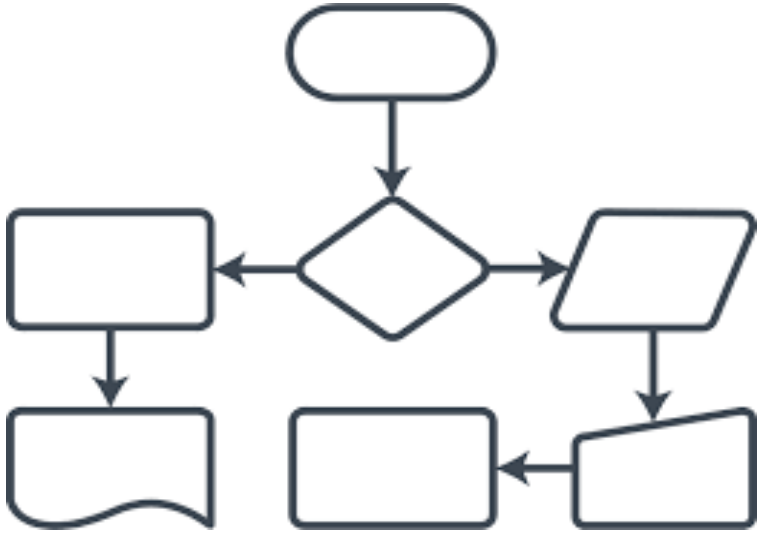
S2_2

Flow charts



Learning objectives

To learn and appreciate the following concepts

- ✓Introduction to flowcharts
- ✓Installation of RAPTOR

Session outcome

✓At the end of session the student will be able to

- ✓ Understand importance of flowchart
- ✓ Install RAPTOR and appreciate how it works

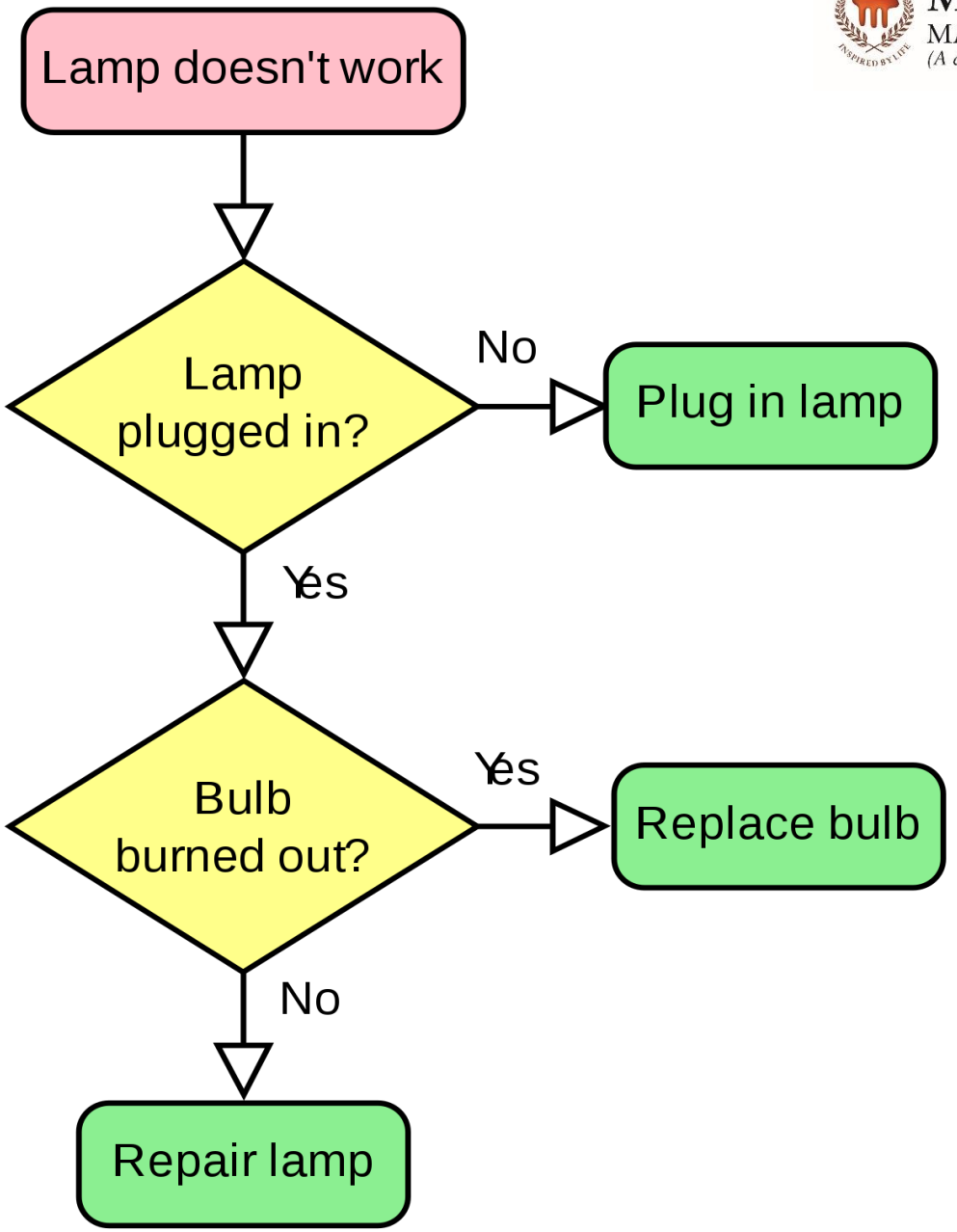
Flowcharts

✓In Computer Science, **Flow chart** is used to represent algorithm which basically provides a solution to any computational problem.

- **Flowchart:** A graphical/pictorial representation of computation

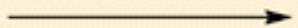
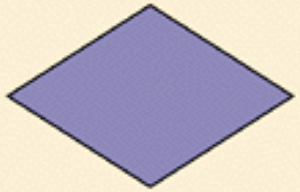
Key features of flowchart

- ✓Diagrammatic / visual / graphical representation of computation of an algorithm/pseudo code
- ✓Easier to understand and analyze the problem and it's solution before programming
- ✓Machine independent
- ✓ Well suited for any type of logic



Simple Flowchart!!!

Basic Flowchart Symbols

Name	Symbol	Use in flowchart
Oval		Denotes the beginning or end of a program.
Flow line		Denotes the direction of logic flow in a program.
Parallelogram		Denotes either an input operation (e.g., INPUT) or an output operation (e.g, PRINT).
Rectangle		Denotes a process to be carried out (e.g., an addition).
Diamond		Denotes a decision (or branch) to be made. The program should continue along one of two routes (e.g., IF/THEN/ELSE).

Area of the circle

Name of the algorithm:
Compute the area of a circle

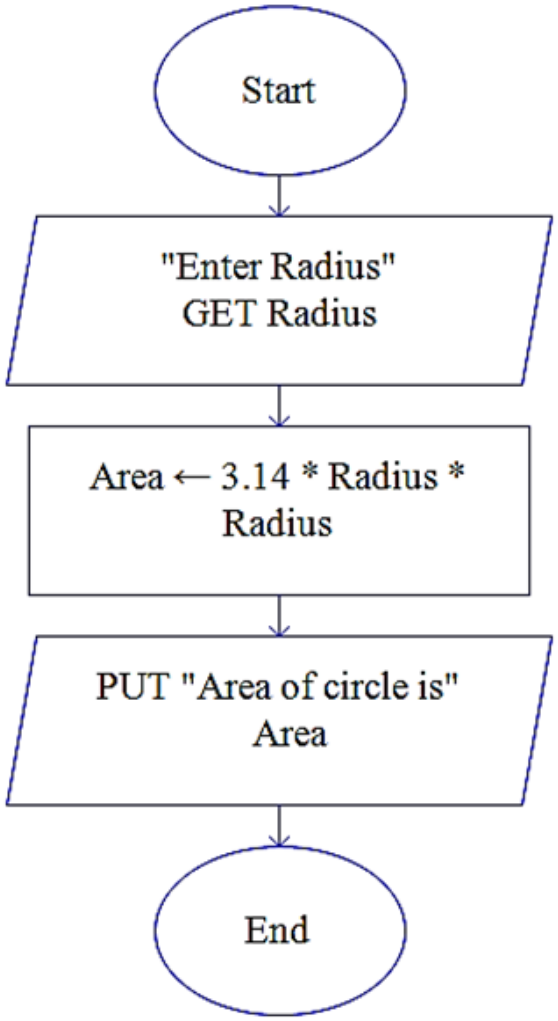
Step1: Input radius

Step 2: [Compute the area]
Area ← 3.1416 * radius*radius

Step 3: [Print the Area]
Print 'Area of a circle =', Area

Step 4: [End of algorithm]
Stop

Flowchart



Comparing two numbers

Name of the algorithm: Comparing 2 numbers

Step 1: Start

Step 2: Input num1, num2

Step 3: if num1 > num2 then

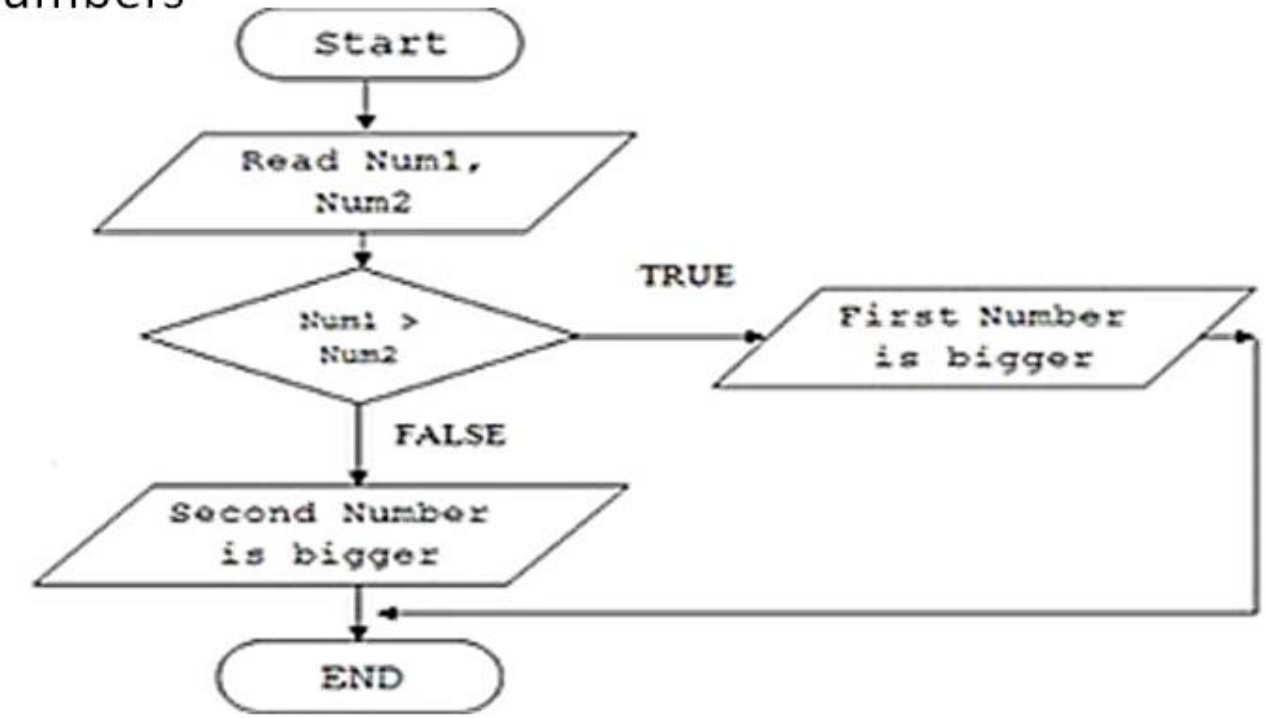
Print num1 is bigger

else

Print num2 is bigger

Step 4: end

Flowchart

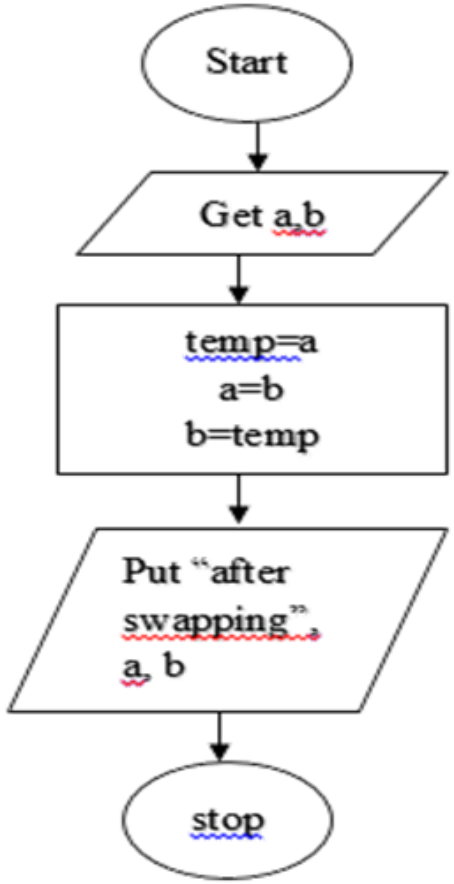


Swapping two numbers

Name of the algorithm: Swapping 2 numbers

Step1: Input two numbers
Step 2: [swapping]
temp=a
a=b
b=temp
Step 3: [Print]
Print 'after swapping=', a, b
Step 4: [End of algorithm]
Stop

Flowchart



Go to posts/chat box for the link to the question

submit your solution in next 2 minutes

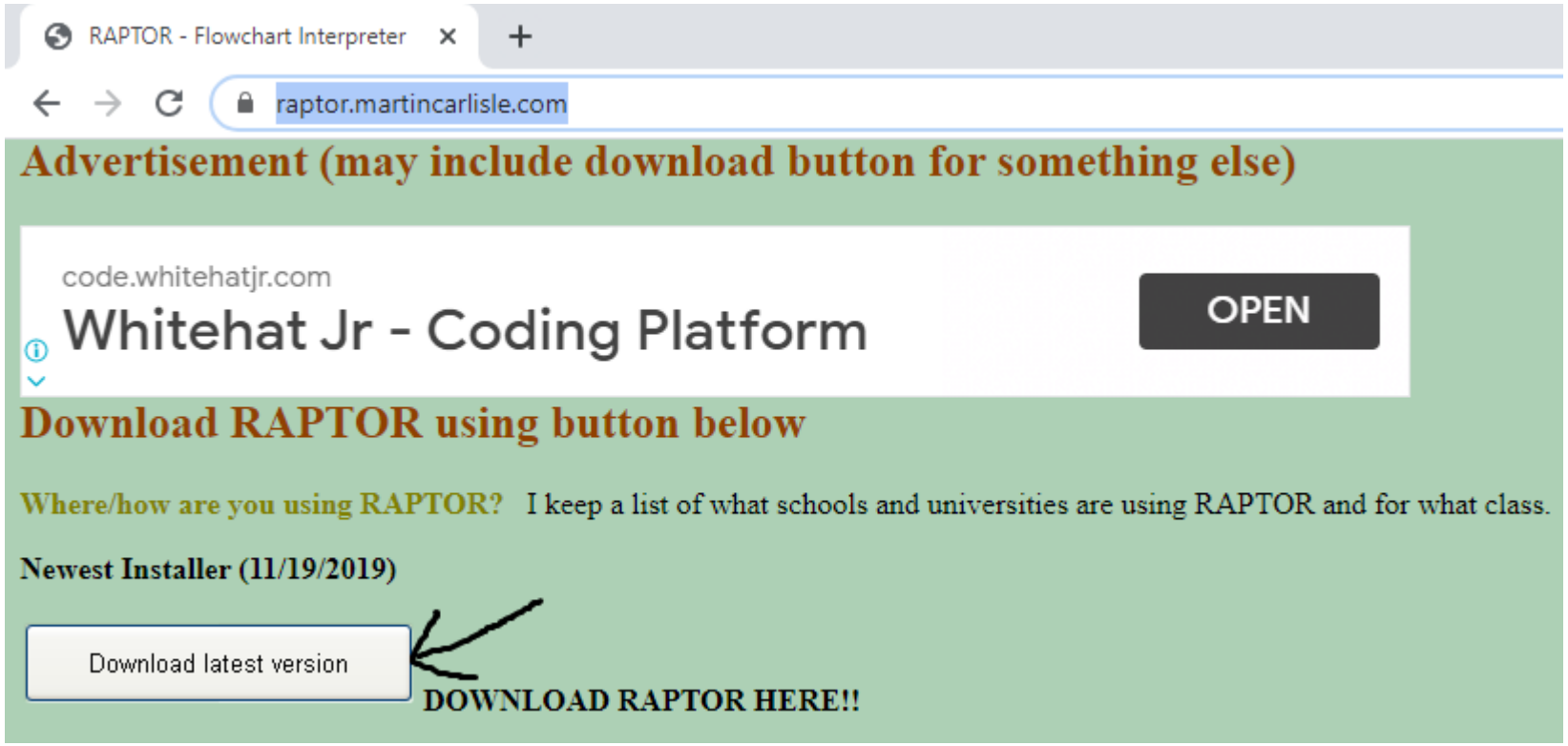
The session will resume in 3 minutes

RAPTOR – Rapid Algorithmic Programming Tool for Ordered Reasoning. Flowchart Interpreter!!!

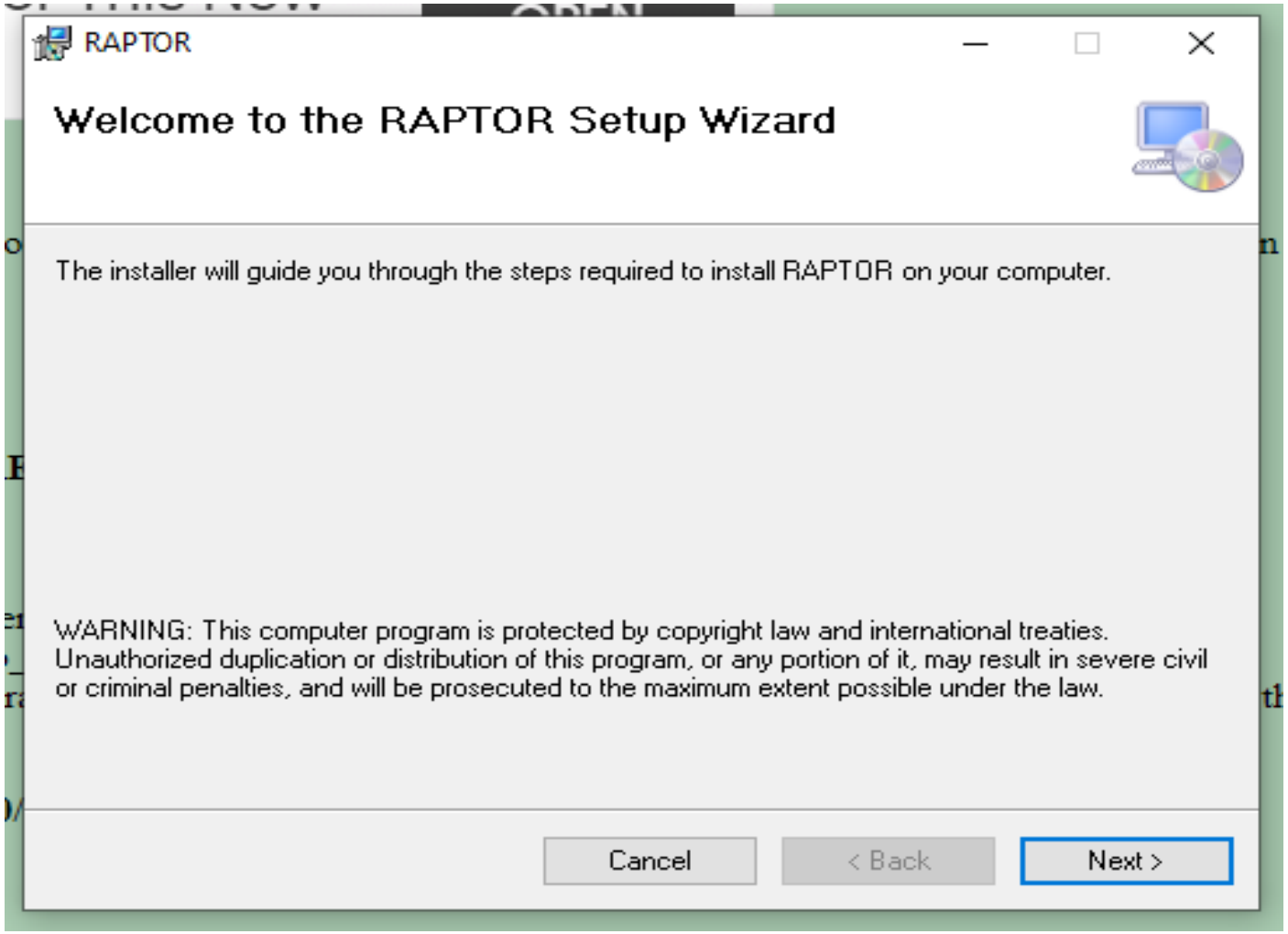
- RAPTOR is a flowchart-based programming environment, designed specifically to help students visualize their algorithms and avoid syntactic baggage.

URL and setup - RAPTOR

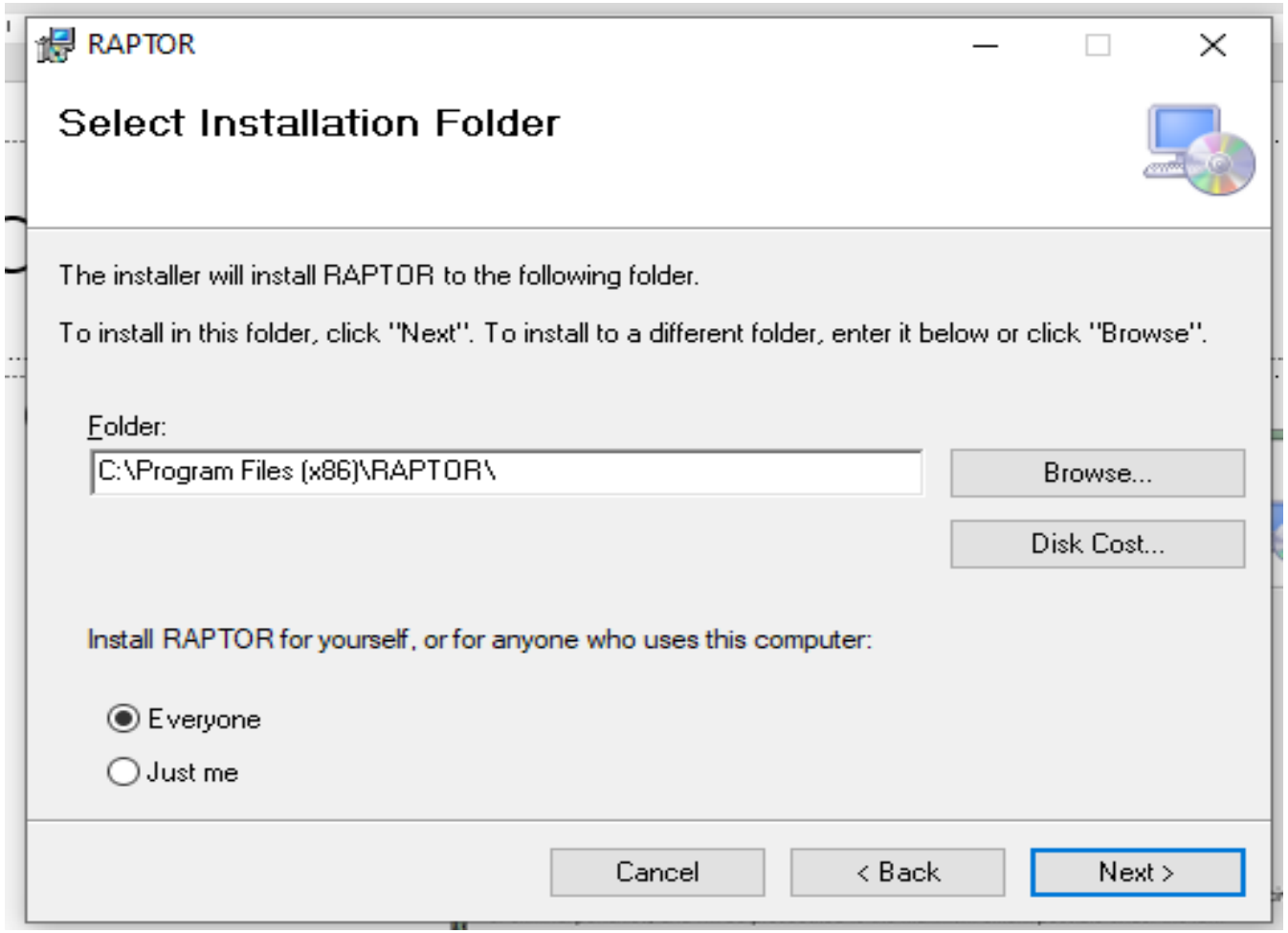
- https://raptor.martincarlisle.com/



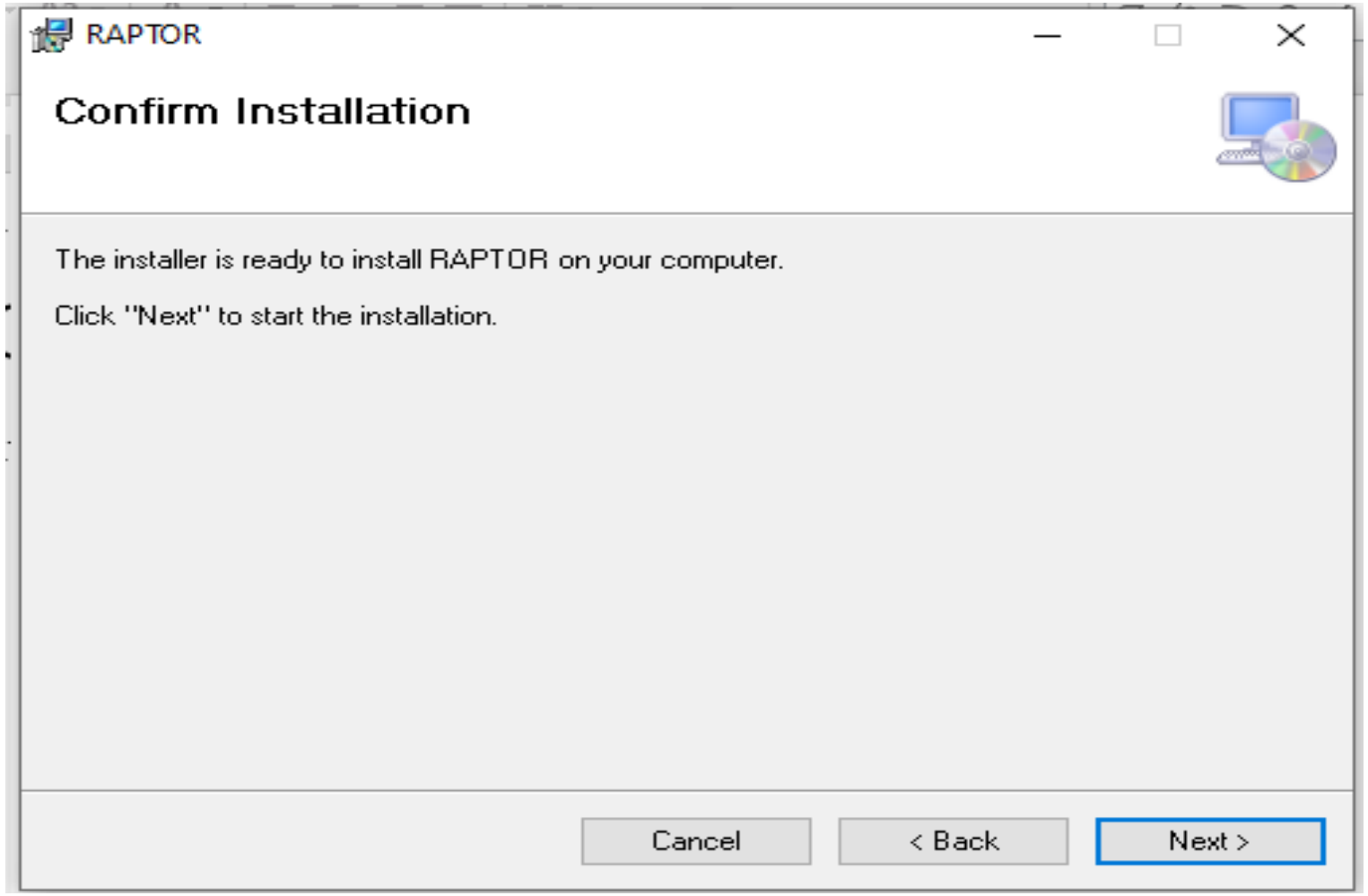
Installation process!!!



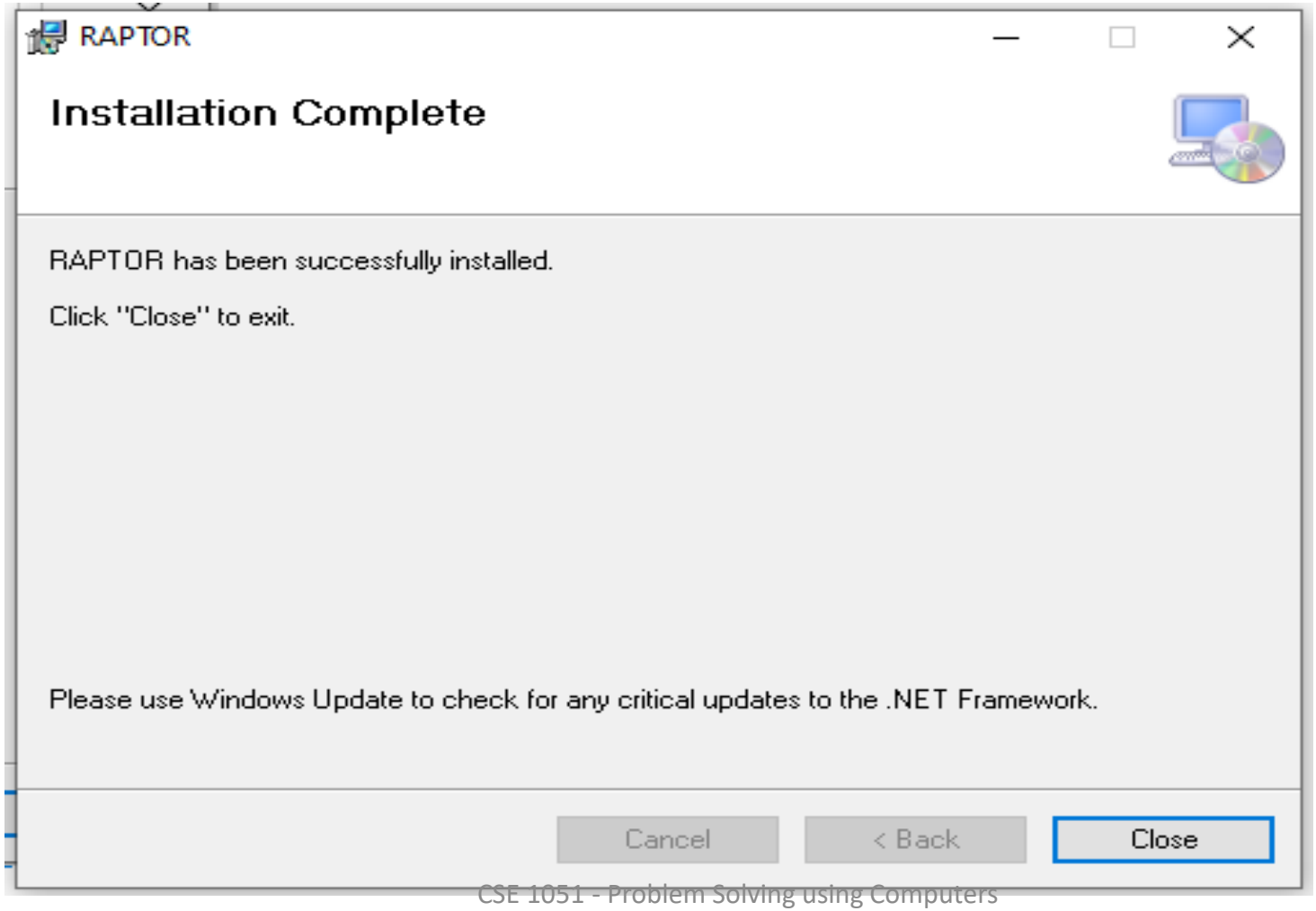
Installation process!!!



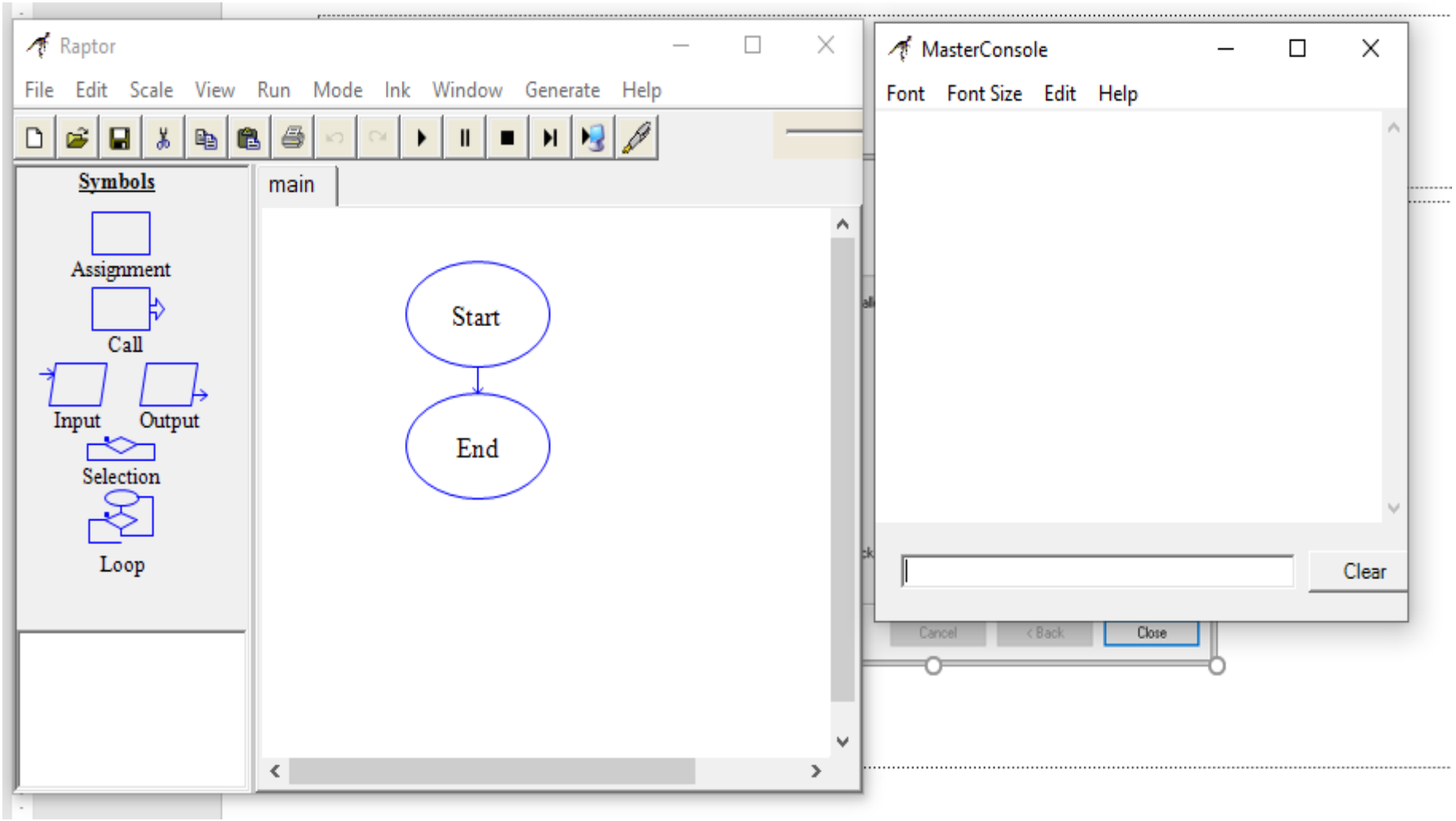
Installation process!!!



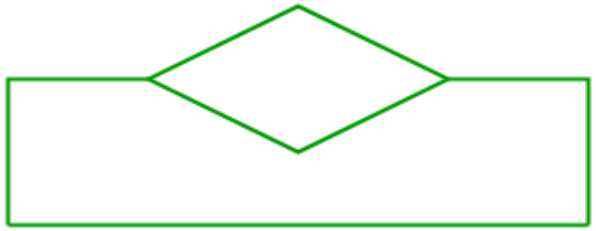
Installation complete!!

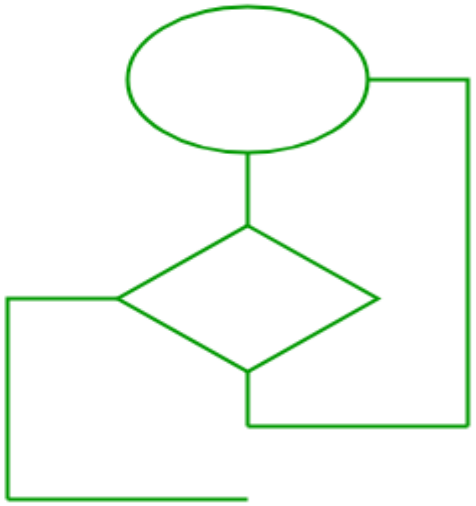


When u click on Raptor application!!!

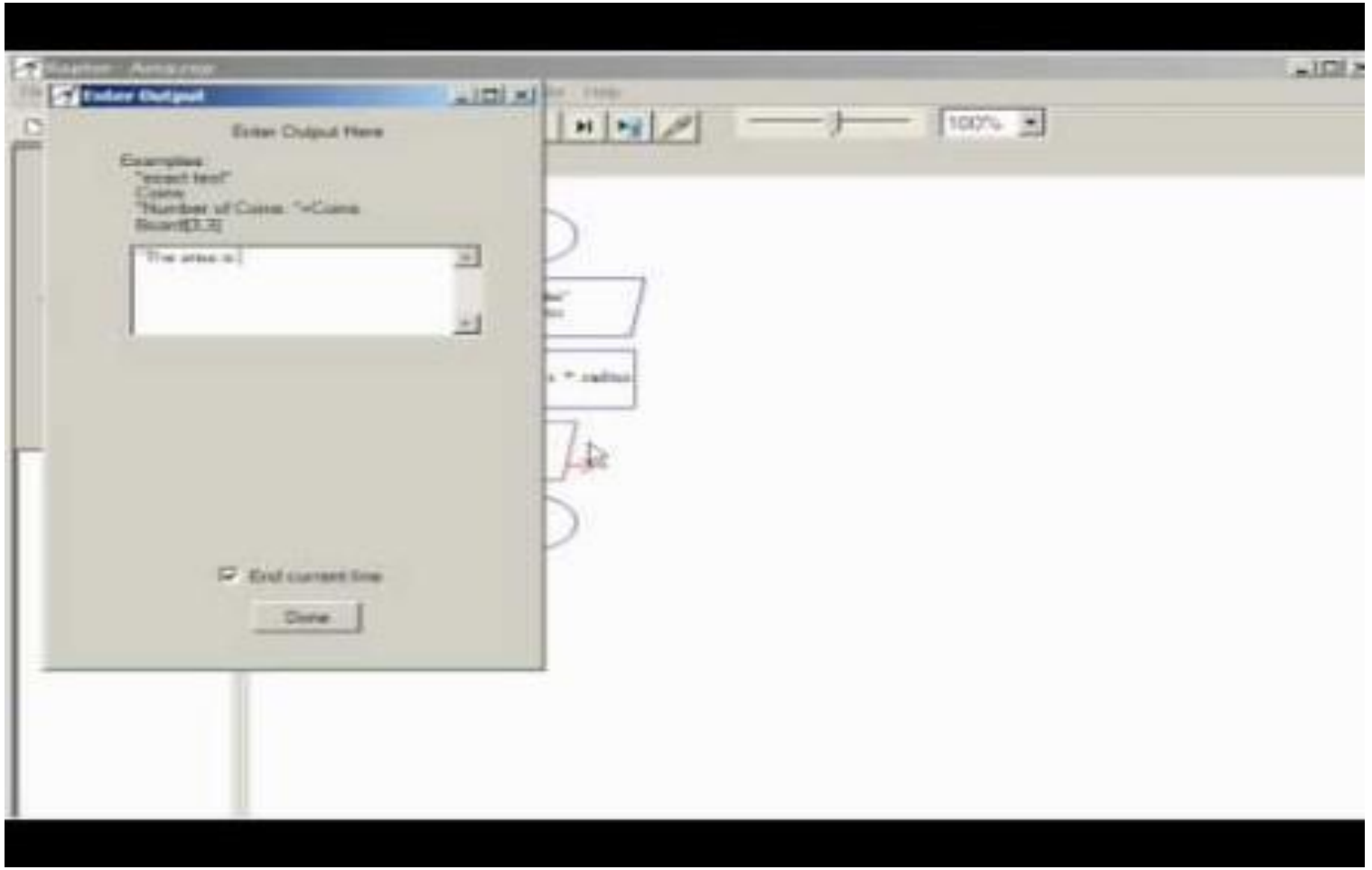


Raptor controls!!!


Selection


Loop

Video tutorial for RAPTOR!!!



https://www.youtube.com/watch?v=ZcAALK3movs

Session 2 Summary

- ✓Introduction to algorithms
- ✓Algorithms for simple problems
- ✓Introduction to flowcharts
- ✓Installation of RAPTOR tool