ALGORITHM
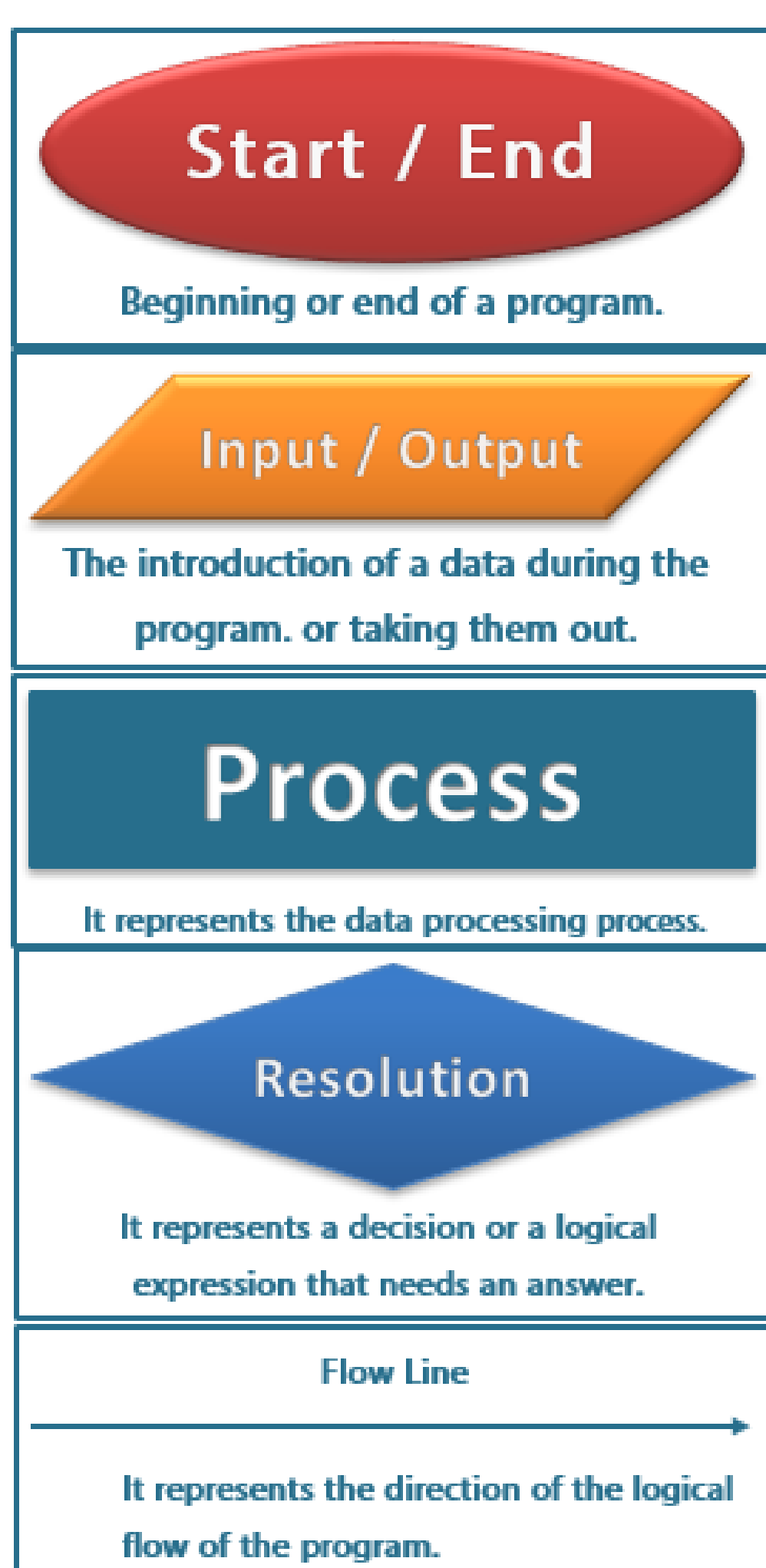
SUPERVISOR : Lec. Dr. Taif Alawsi

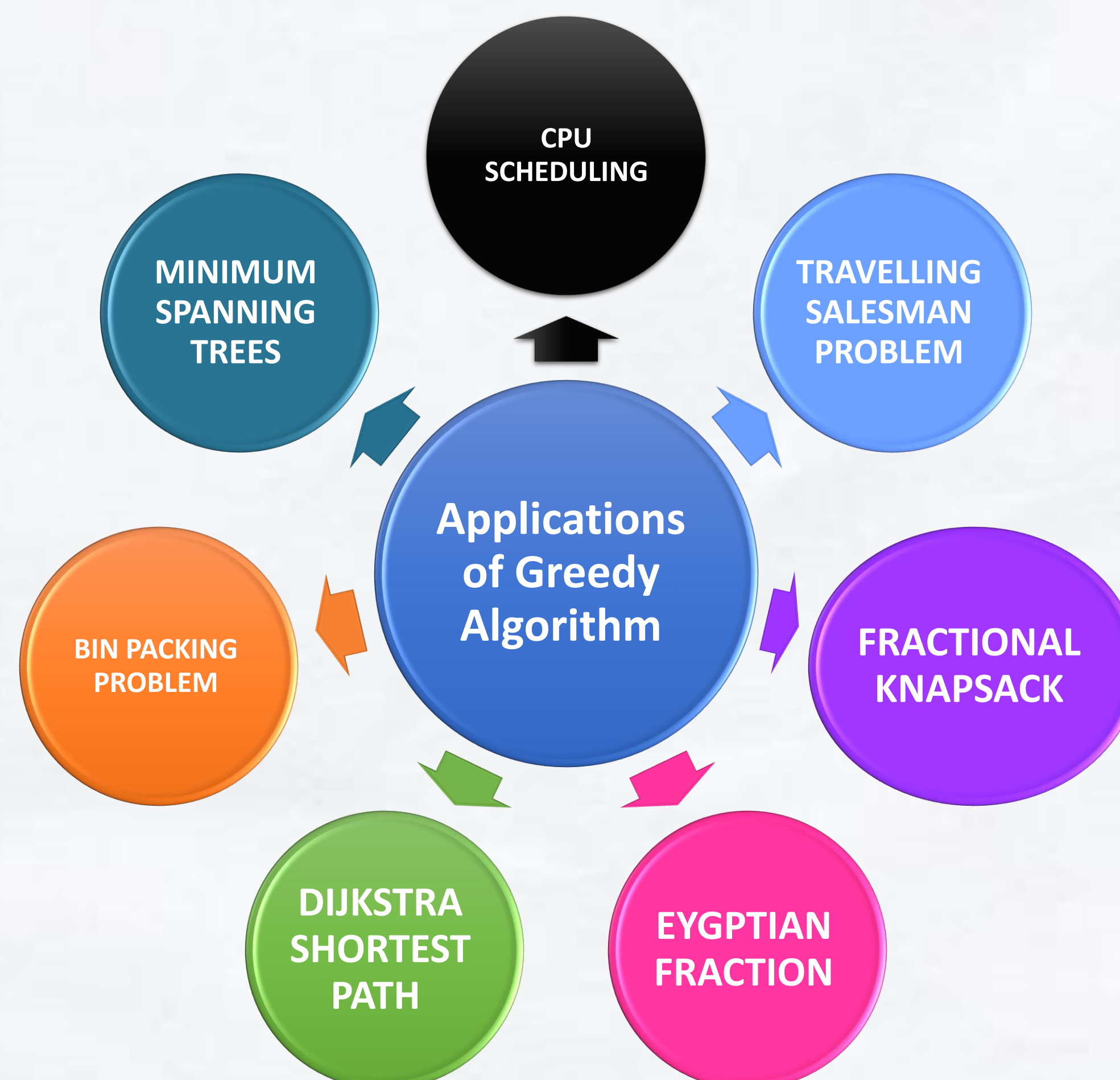**GROUP :** Mohammad, et al.

INTRODUCTION :

It is a procedure or formula for solving a problem, based on conducting a sequence of specified actions. A computer program can be viewed as an elaborate algorithm. In mathematics and computer science, an algorithm usually means a small procedure that solves a recurrent problem. Algorithms are widely used throughout all areas of IT (information technology). A search engine algorithm, for example, takes search strings of keywords and operators as input, searches its associated database for relevant web pages, and returns results.
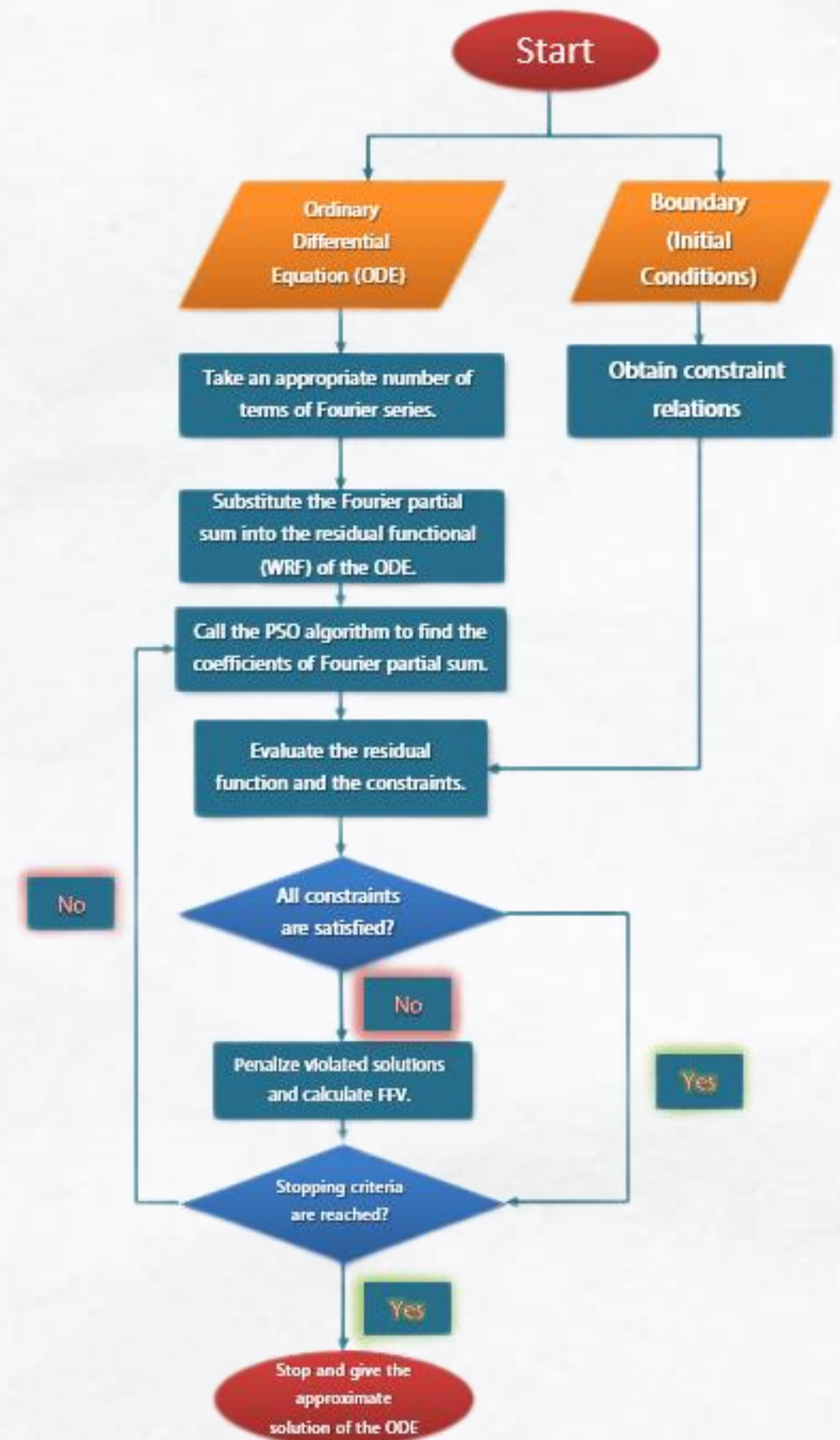

FLOW CHART OPERATORS :

Start / End
Beginning or end of a program.

Input / Output
The introduction of a data during the program. or taking them out.

Process
It represents the data processing process.

Resolution
It represents a decision or a logical expression that needs an answer.

Flow Line
It represents the direction of the logical flow of the program.

APPLICATIONS :

Applications of Greedy Algorithm

- CPU SCHEDULING
- TRAVELLING SALESMAN PROBLEM
- FRACTIONAL KNAPSACK
- EYGPTIAN FRACTION
- DIJKSTRA SHORTEST PATH
- BIN PACKING PROBLEM
- MINIMUM SPANNING TREES

SOLVING ODE IN ALGORITHM :

Start

Ordinary Differential Equation (ODE) — Take an appropriate number of terms of Fourier series.

Boundary (Initial Conditions) — Obtain constraint relations

Substitute the Fourier partial sum into the residual functional (WRF) of the ODE.

Call the PSO algorithm to find the coefficients of Fourier partial sum.

Evaluate the residual function and the constraints.

All constraints are satisfied? — No

Penalize violated solutions and calculate FFV. — No / Yes

Stopping criteria are reached? — Yes

Stop and give the approximate solution of the ODE

YOUTUBE ALGORITHM :

Uploading

1 Uploading
Once you hit Upload, YouTube copies your video into several different file formats with differing levels of video quality.

2 Video packets
Each version of the video is then chopped up into several different pieces called packets.

3 Wireless transmission
The packets are then encoded as radio waves which are sent over Wi-Fi or a mobile network.

4 Delivered to YouTube
When the signal reaches a cell tower or a router, it is transmitted via a wired connection to YouTube's servers.

5 Reassembly and storage
YouTube's servers receive the packets, reassemble them into a video and store it at Google's data centres.

300 hours of video are uploaded to YouTube every minute

Downloading

1 Click play
When someone clicks to play your video, a request is sent over the internet to YouTube's servers.

2 Video chopped up
YouTube selects the best video format for the browser being used to view it and chops it back into packets.

3 Delivered to the viewer
The packets are sent via wired and wireless connections to the viewer's computer.

4 Instant playback
The packets are delivered in order to form the original video at the optimum quality.

5 Buffering
If the internet connection is slow, the video may buffer when waiting for the next packet to be delivered.

1 billion people regularly use YouTube to watch and upload videos

Over 700 YouTube videos are shared on Twitter each minute

TERMS :

ODE : ORDINARY DIFFERENTIAL EQUATION
PSO: PARTICLE SWARM OPTIMIZATION
FFV: FITNESS FUNCTION
WRF: WEIGHTED-RESIDUAL FUNCTION