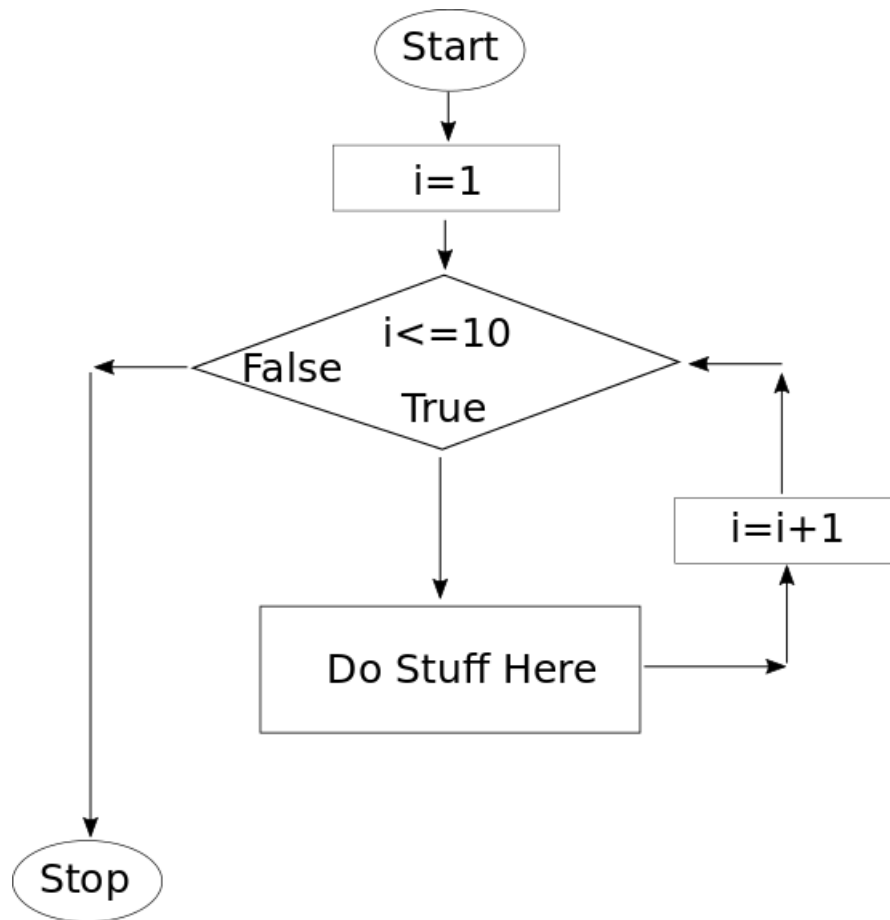


## ENGR 1120 Lecture Chapter 5 - Looping Statements

- What is **Looping** ? Why **Loop**?
  - Have you noticed that in your previous programs that there was alot of **Repeated Code** ?
  - Why is alot of **Repeated Code** bad?
    - \*  
\*  
\*
  - What can we do about it?
  - Introduce a new **Control Structure** ...

- the **While Loop** is a **Control Structure** used for repeating code
  - in MATLAB this requires the **reserved keywords** **while** and **end**
  - everything between **while** and **end** is **repeated** as long as the **condition** is true
  - the **condition** that controls the loop is a **Logical Statment**
  - looping structures can be **nested** as well
- Now we can **Design** more complex **Program Flow**

- Flowchart Representation



- MATLAB **syntax**

```
i=1; %Initialize the loop counter
while (i<=10)
    %Do Stuff Here
    i=i+1; %Increment the loop counter
end
```

- **Introduction to Algorithms**

- “In mathematics and computer science, an algorithm is a self-contained sequence of actions to be performed. Algorithms perform calculation, data processing, and/or automated reasoning tasks.” - Wikipedia
- “A step by step description of a process” - me
- “A solution technique for a *general problem*” - me

- **Basic Algorithms every programmer needs**

- count
- sum
- average
- maximum
- minimum

- Counting

- **Summation and Average**

- **Maximum and Minimum**