

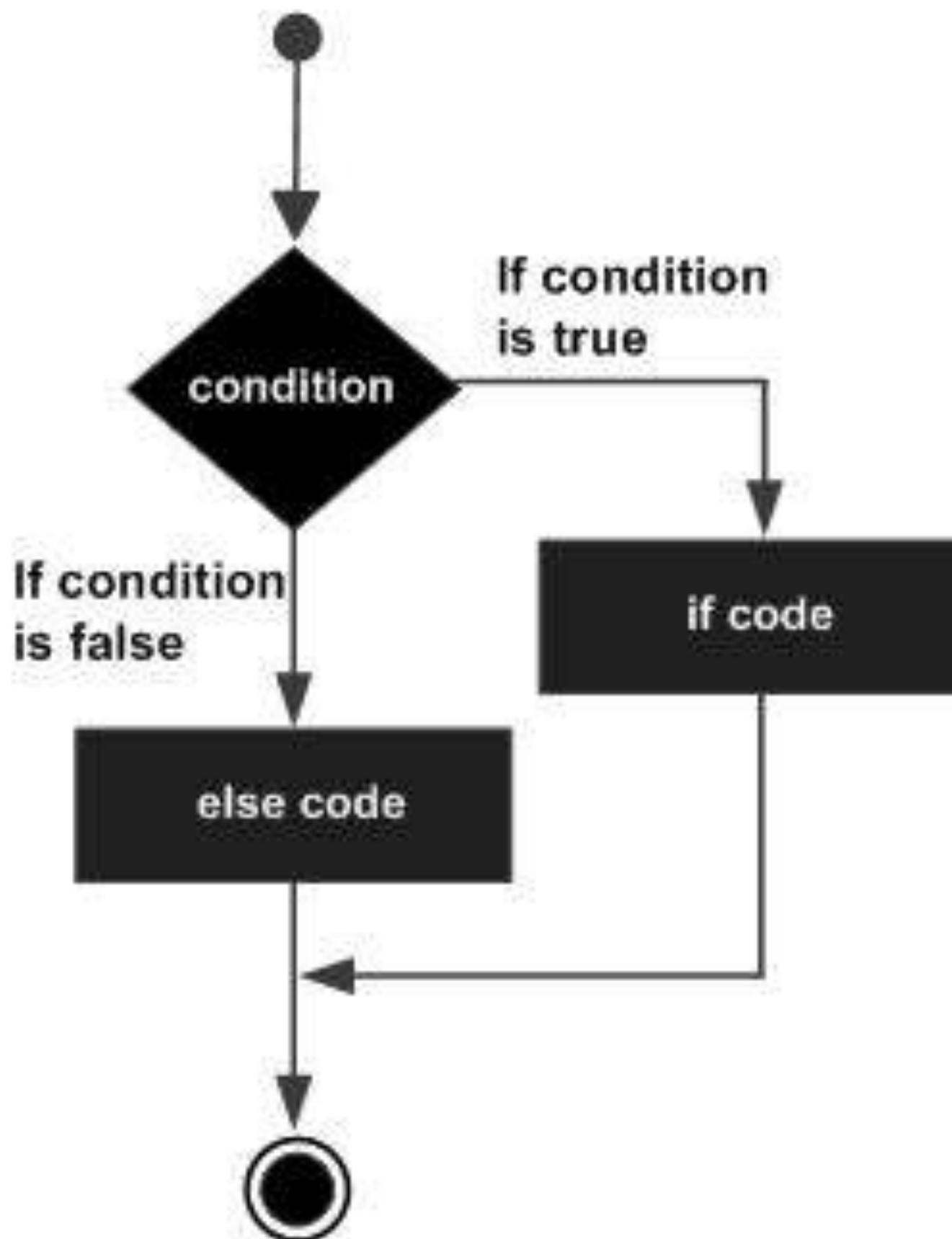
# Session 3

(Customer Analytics)

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# Control statements - if/else/ifelse



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```
if(boolean_expression 1) {  
    // Executes when the boolean expression 1 is true.  
} else if( boolean_expression 2) {  
    // Executes when the boolean expression 2 is true.  
} else if( boolean_expression 3) {  
    // Executes when the boolean expression 3 is true.  
} else {  
    // executes when none of the above condition is true.  
}
```

```
ifelse(Boolean_Vector,Outcome_If_True,Outcome_If_False)
```

# Control statements - Logical Operators

Operators	Meaning
<	Less than
<=	Less than or equal to
>	More than
>=	More than or equal to
==	Equal to
!=	Not equal to
!a	Not a
a b	a or b
a&b	a and b
isTRUE(a)	Test if a is true

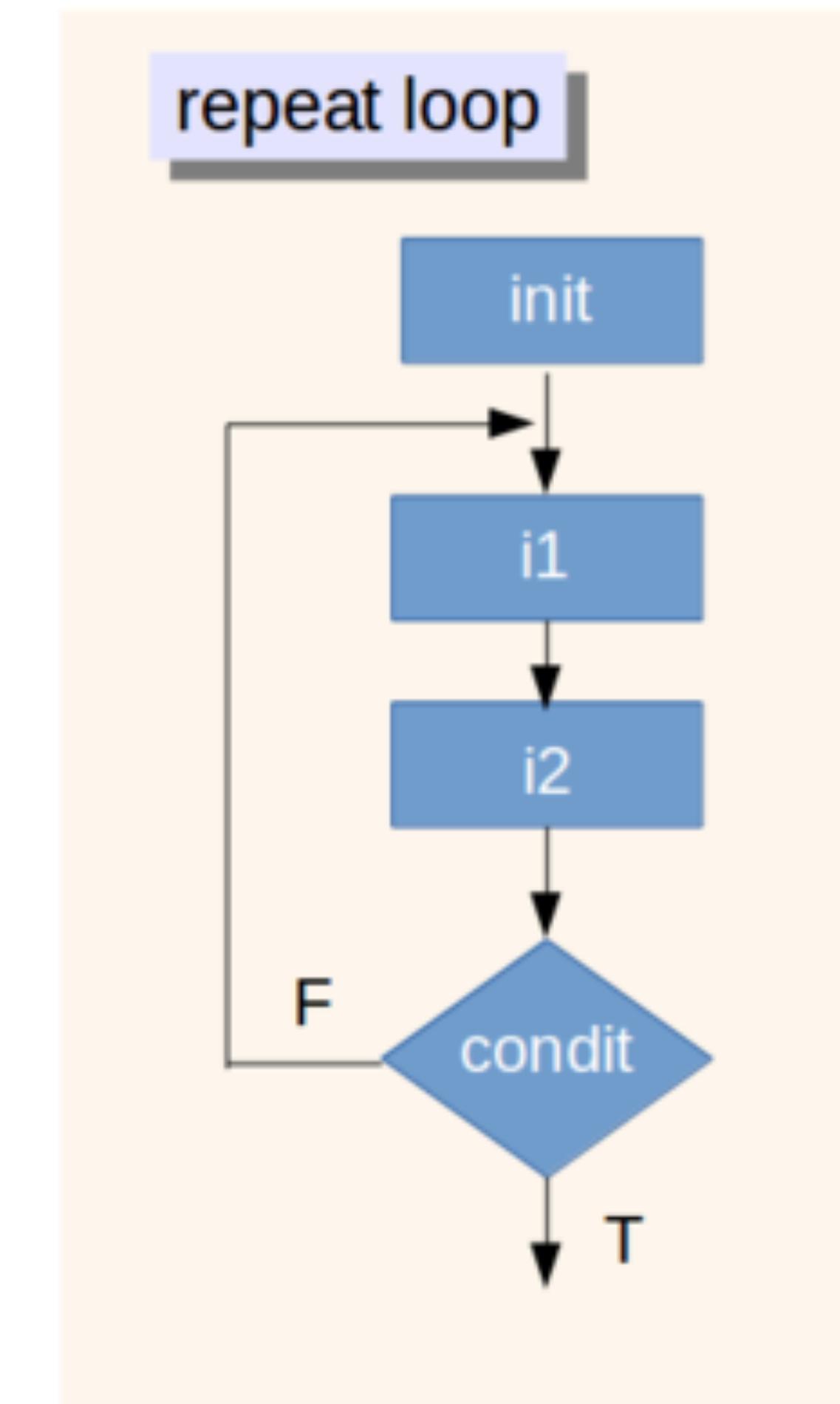
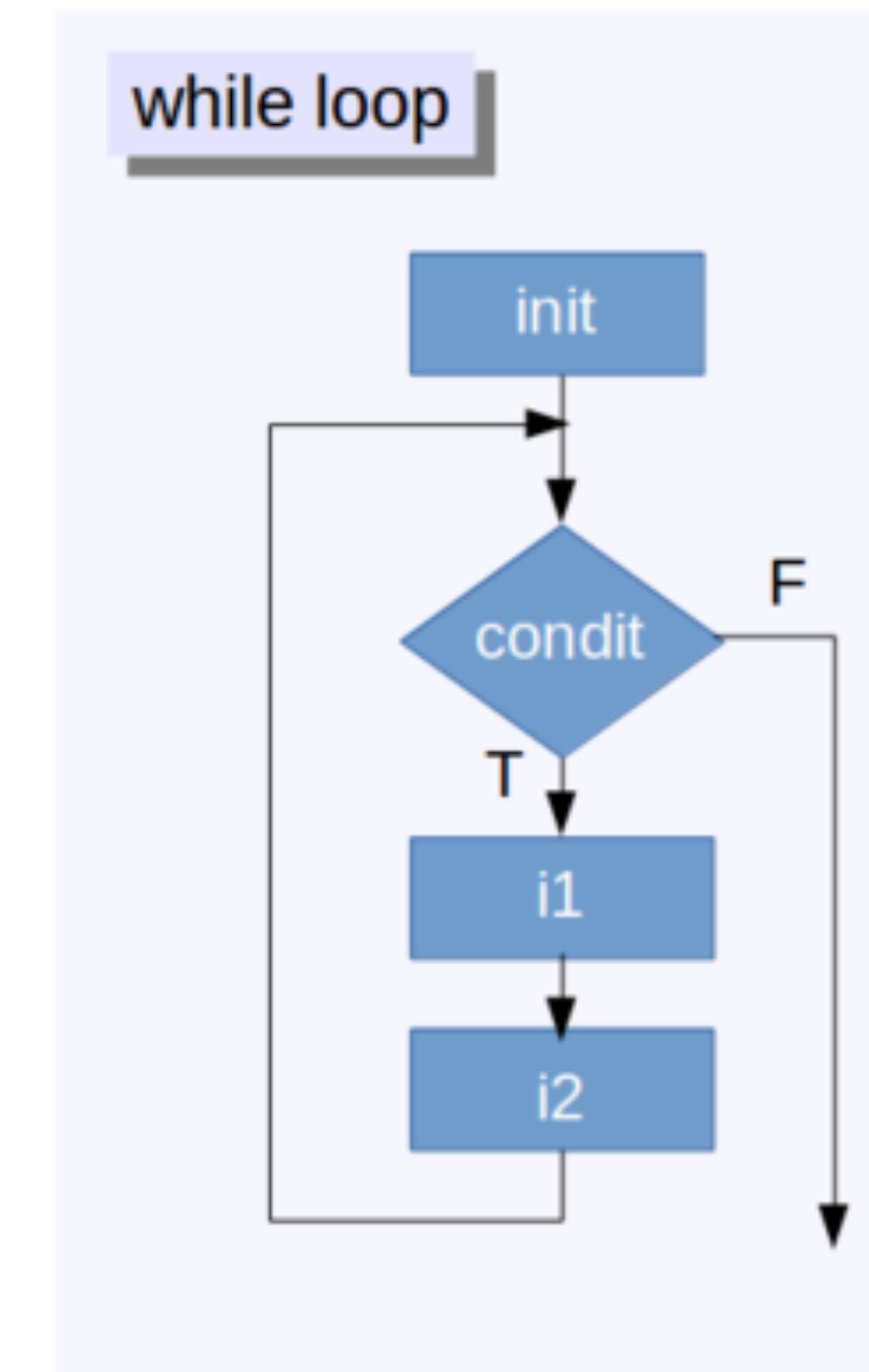
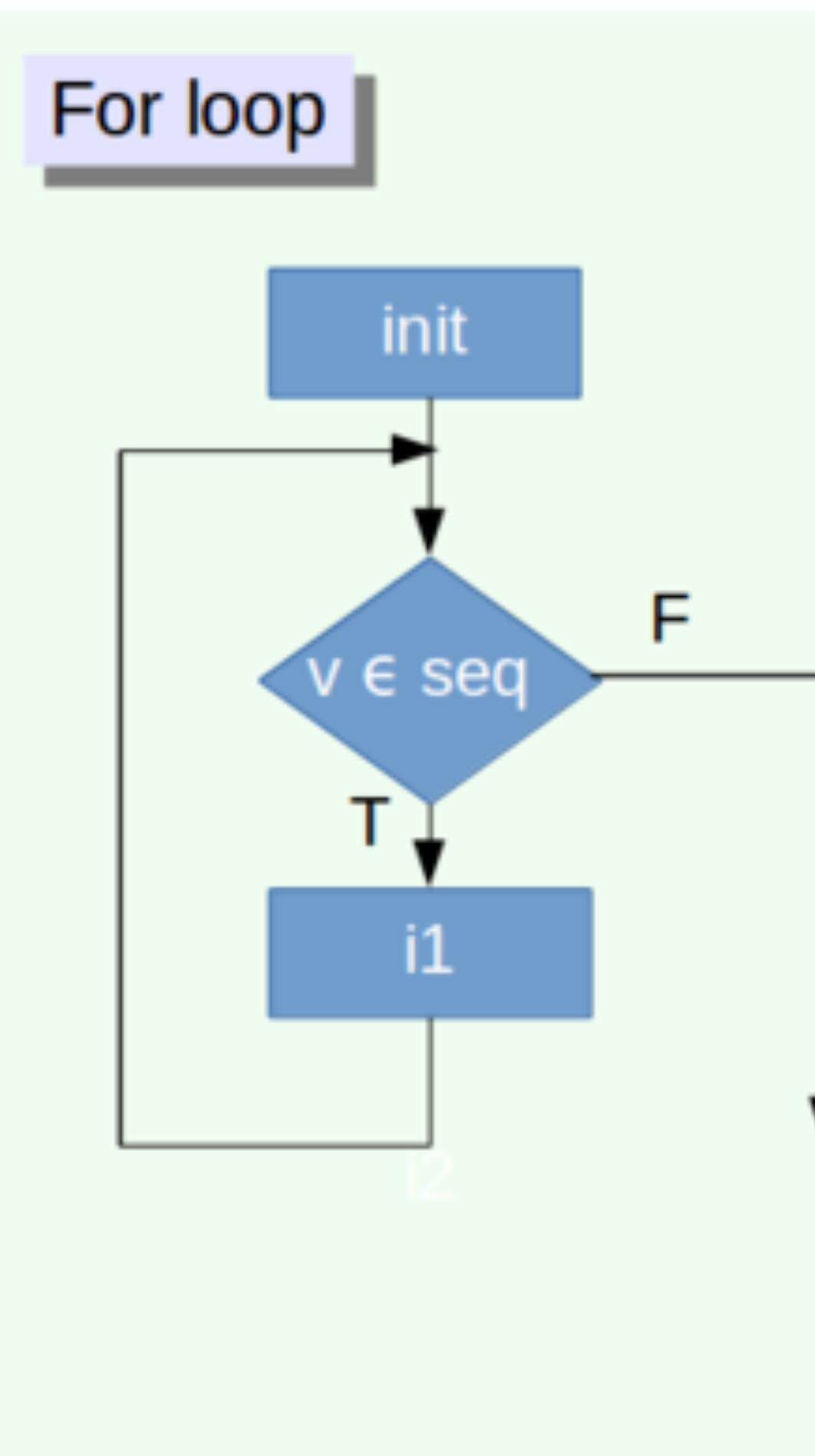
# Control statements - if/else/ifelse

```
# Our first control statement
x <- c("What","is","truth")

if("Truth" %in% x){
  print("Truth is found the first time")
}else if("truth" %in% x){
  print("truth is found the second time")
}else{
  print("No truth found")
}

ifelse("Truth" %in% x,
       print("Truth is found the first time"),
       ifelse("truth" %in% x,
              print("truth is found the second time"),
              print("No truth found"))
)
```

# Control statements – Loops



# Control statements – Loops

```
for(i in 1:10){  
  if(i==6){  
    next  
  }  
  if(i==8){  
    break  
  }  
  print(i)  
}
```

```
i <- 10|  
while(i>0){  
  print(i)  
  i <- i-1  
  if(i==8){  
    next  
  }else{  
    print("ok")  
  }  
}
```

```
v <- c("Hello IE", "looping")  
counter <- 2  
  
repeat{  
  if(counter>5){  
    break  
  }  
  print(c(v, counter))  
  counter <- counter + 1  
}
```

# Control statements – Exercises

- Write a repeat{} loop that prints all the even numbers from 2 – 10
  - Start with i<-0
- Write a while() loop that increments the variable, “i”, 6 times, and prints “msg” at every iteration using the following variables:
  - msg <- c("Hello IE")
  - i <- 1
- Write a for() loop that prints the first four numbers of this sequence: x <- c(7, 4, 3, 8, 9, 25)

# Writing functions

```
say.hello <- function(name){  
  print(sprintf("Hello %s", name))  
}
```

```
hello.person <- function(first, last){  
  print(sprintf("Hello %s %s", first, last))  
}
```

```
say.hello("Josep")
```

```
hello.person("Josep", "Curto")  
hello.person(last="Jobs", "Steve")
```

hello.person(last="Gates")

# Functions - Exercises

- Create a function that will return the sum of 2 numbers
- Create a function what will return TRUE if a given integer is inside a vector
  - With while
  - With for
  - With %in%
- Create a function that given a data frame will print by screen the name of the column and the class of data it contains (e.g. Variable1 is Numeric).
- Create a function that given an integer will calculate how many divisors it has (other than 1 and itself). Make the divisors appear by screen

# Reading files

<code>read.csv</code>	for comma separated values with period as decimal separator.
<code>read.csv2</code>	for semicolon separated values with comma as decimal separator.
<code>read.delim</code>	tab-delimited files with period as decimal separator.
<code>read.delim2</code>	tab-delimited files with comma as decimal separator.
<code>read.fwf</code>	data with a predetermined number of bytes per column.

Argument	description
<code>header</code>	Does the first line contain column names?
<code>col.names</code>	character vector with column names.
<code>na.string</code>	Which strings should be considered NA?
<code>colClasses</code>	character vector with the types of columns.
<code>stringsAsFactors</code>	Will coerce the columns to the specified types.
<code>sep<sup>†</sup></code>	If TRUE, converts all character vectors into factor vectors.
<code>sep<sup>†</sup></code>	Field separator.

<sup>†</sup>Used only internally by `read.fwf`

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# Reading CSV files

```
#choosing the file  
customerData <- read.csv(file.choose())
```

```
# Load a csv file|  
customerData <- read.csv("s3.csv")
```

```
#reading from a url  
fileURL <- "http://www.stats.ox.ac.uk/pub/datasets/csb/ch11b.dat"  
download.file(fileURL, destfi Open Link (Command+Click)  
data <- read.table("exampledatal.dat", header=TRUE)  
head(data)
```

```
#Validate that two datasets are the same  
data2<-read.csv(file="exampledatal.dat",header=TRUE,sep=" ")  
all.equal(data,data2)
```

```
#Load data from a website  
theurl<- "http://jaredlander.com/data/Tomato%20First.csv"  
tomato<-read.table(file=theurl,header=TRUE,sep=",")
```

```
#choosing the file  
save(tomato,file="tomato.data")  
rm(tomato)  
load(file=".data/tomato.data")
```

Now we jump to GGPLOT2! Let's make some graphs!

# Session Wrap-up





Q&A

# Thank you!

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