

Control Statements

This note is meant help you gain some intuition about which control statements to use in various cases, we know of three ways so far –

1. if
2. if else
3. if elseif then

Every case shown below is written in all the three ways and technically, every way is correct. However, some ways are more optimal than others. As you read through the examples, choose which way you think is the best, you'll find the answers and some explanation at the end.

(The examples given below are written in pseudocode and cannot be tested in MATLAB as is, they are just meant to demonstrate the usage of various logically equivalent ways to express something.)

CASE I

Hogwarts has a list of children, They want to send an admit to Hogwarts to all the wizards in that list and send Disney World tickets to all the remaining children from the list.

```
if the child is a wizard
    send admit to Hogwarts!!
if the child is not a wizard
    send ticket to Disney world!!
end
```

```
if the child is a wizard
    send admit to Hogwarts!!
else
    send ticket to Disneyworld!!
end
```

```
if the child is a wizard
    send admit to Hogwarts!!
elseif the child is not a wizard
    send ticket to Disneyworld!!
else
    do nothing!
end
```

CASE II

Now that school year at Hogwarts has started, the sorting ceremony must take place. Dumbledore wants all the first years to form a queue in front of the sorting hat.

```
if wizard is in the 1st year
    Ask to stand in the queue
end
```

```
if wizard is in the 1st year
    Ask to stand in the queue
else
    do nothing
end
```

```
if wizard is in the 1st year
    Ask to stand in the queue
elseif wizard is not in the 1st year
    do nothing
else
    do nothing
end
```

CASE III

All the first years are now waiting to be sorted. The sorting hat asks each wizard to think of a number. If a wizard picks 10, He is sorted into Hufflepuff, 20 for Ravenclaw, 30 for Gryffindor and 40 for Slytherin. If none of these is picked, the sorting hat asks the wizard to think again.

```

if num == 10
  Sort into Hufflepuff
end
if num == 20
  Sort into Ravenclaw
end
if num == 30
  Sort into Gryffindor
end
if num == 40
  Sort into Slytherin
end
if num == 10 || num == 20 || num == 30 || num == 40
  Cheating!! Choose a num again!
end

```

```

if num == 10
  sort into Hufflepuff
else
  if num == 20
    sort into Ravenclaw
  else
    if num == 30
      sort into Gryffindor
    else
      if num == 40
        sort into Slytherin
      else
        Cheating!! choose a num again!!
      end
    end
  end
end
end

```

```

if num == 10
  sort into Hufflepuff
elseif num == 20
  sort into Ravenclaw
elseif num == 30
  sort into Gryffindor
elseif num == 40
  sort into Slytherin
else
  cheating!! choose a num again!
end

```