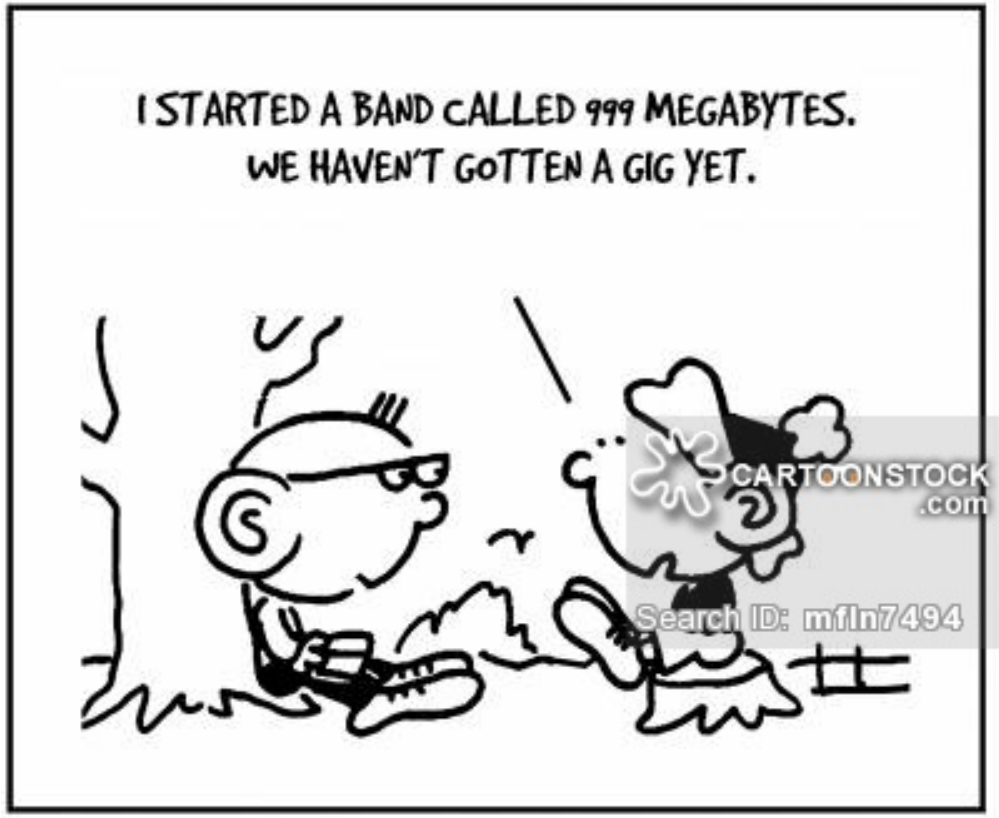
ME1 Computing



Provide feedback (anonymously) at:

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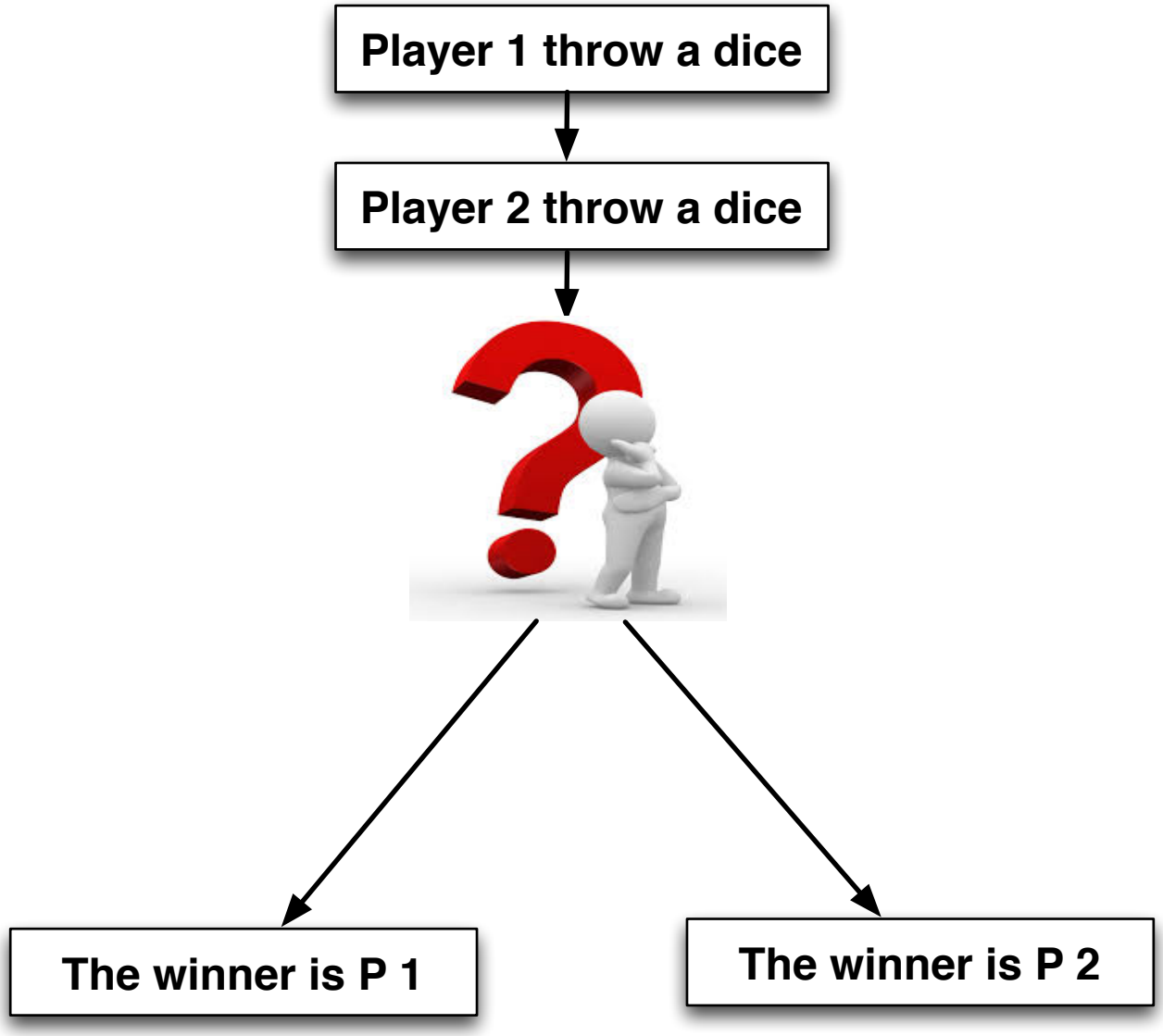
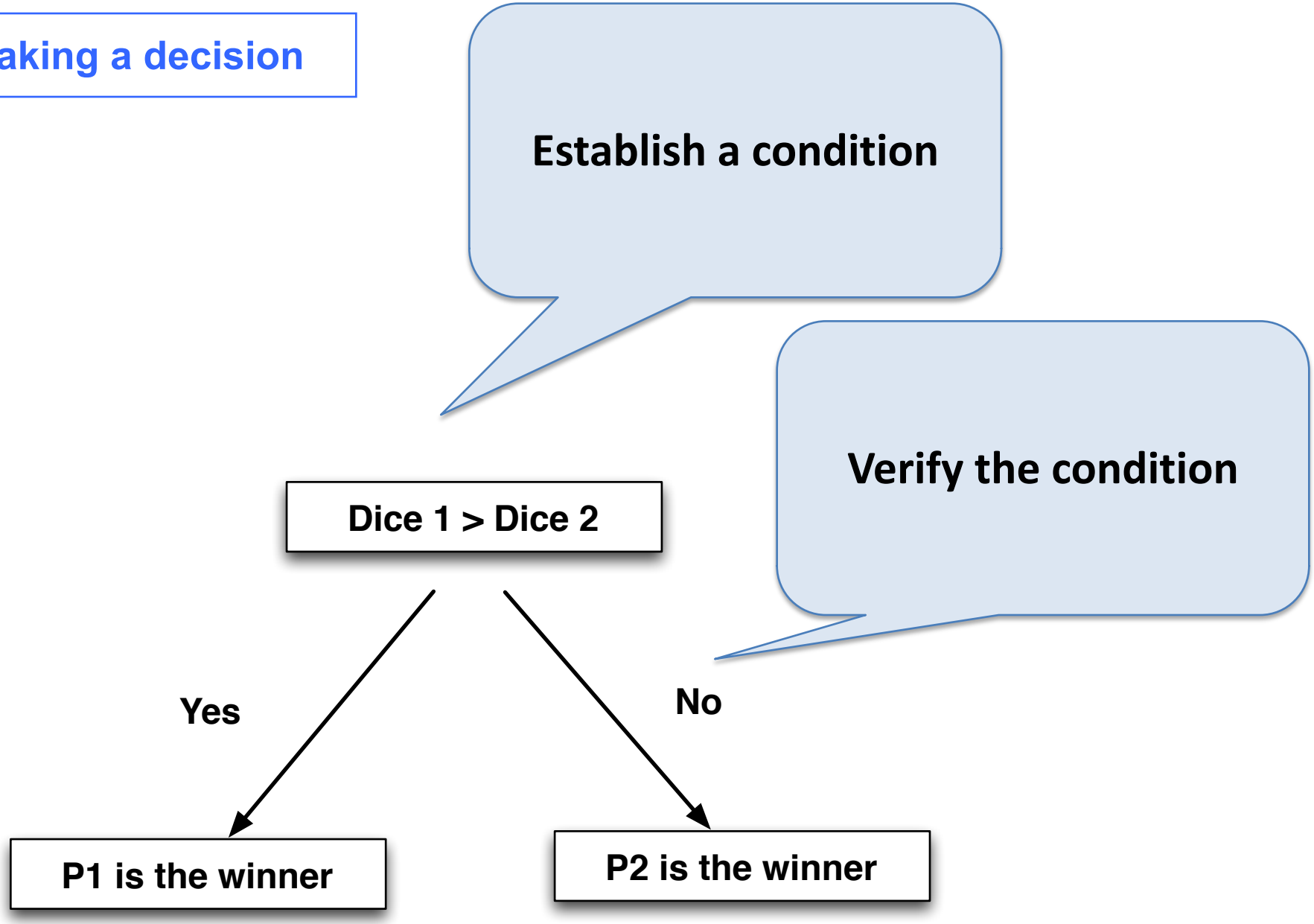
with code **63 53 57**

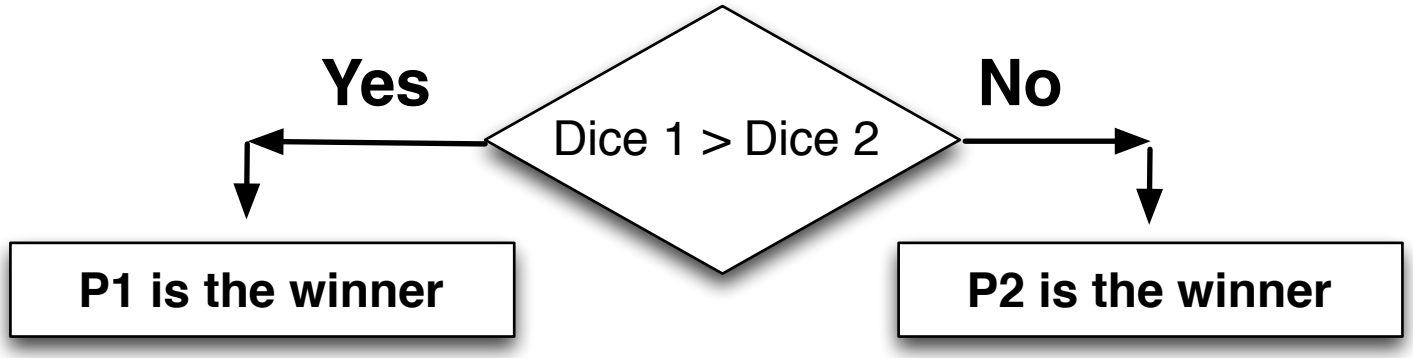
Two people playing dice: establish the winner



Taking a decision



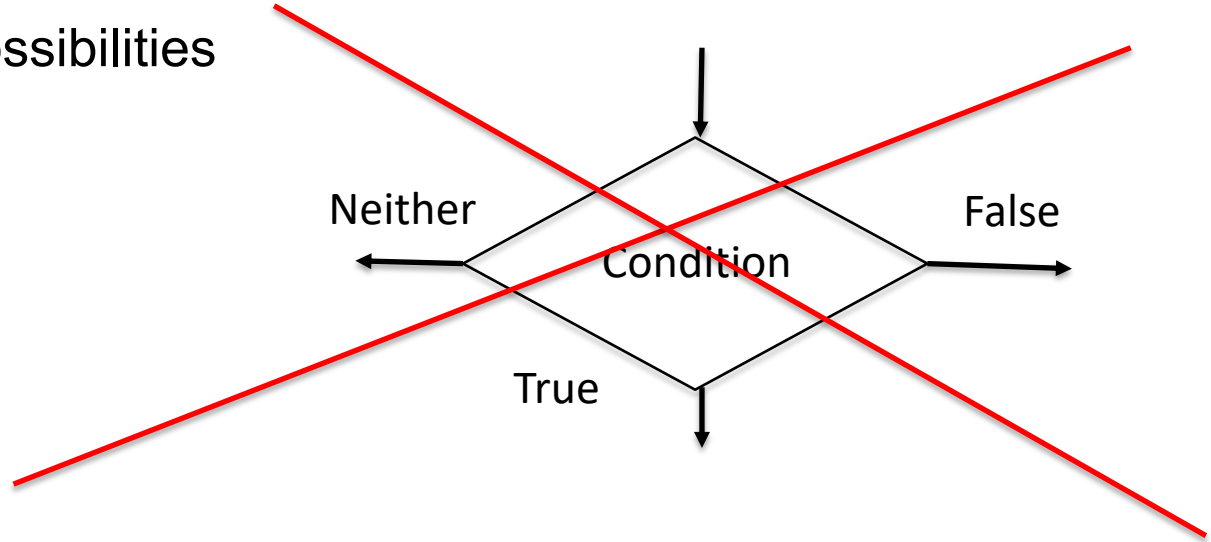
Flow control: the IF statement

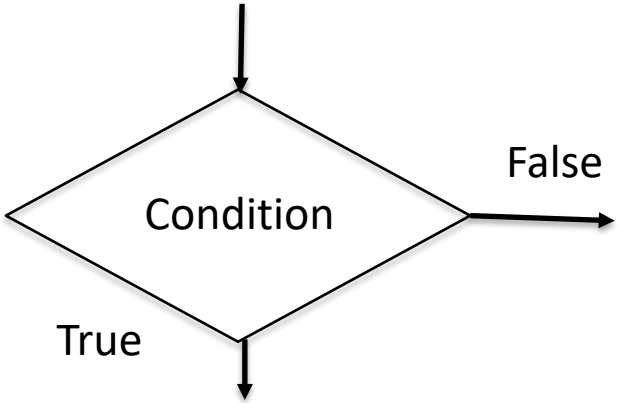



```
if Dice1 > Dice2:
    % P1 is the winner
    print('P1 is the winner')
else:
    % P2 is the winner
    print('P2 is the winner')
```

Conditional branching

There are only two possibilities





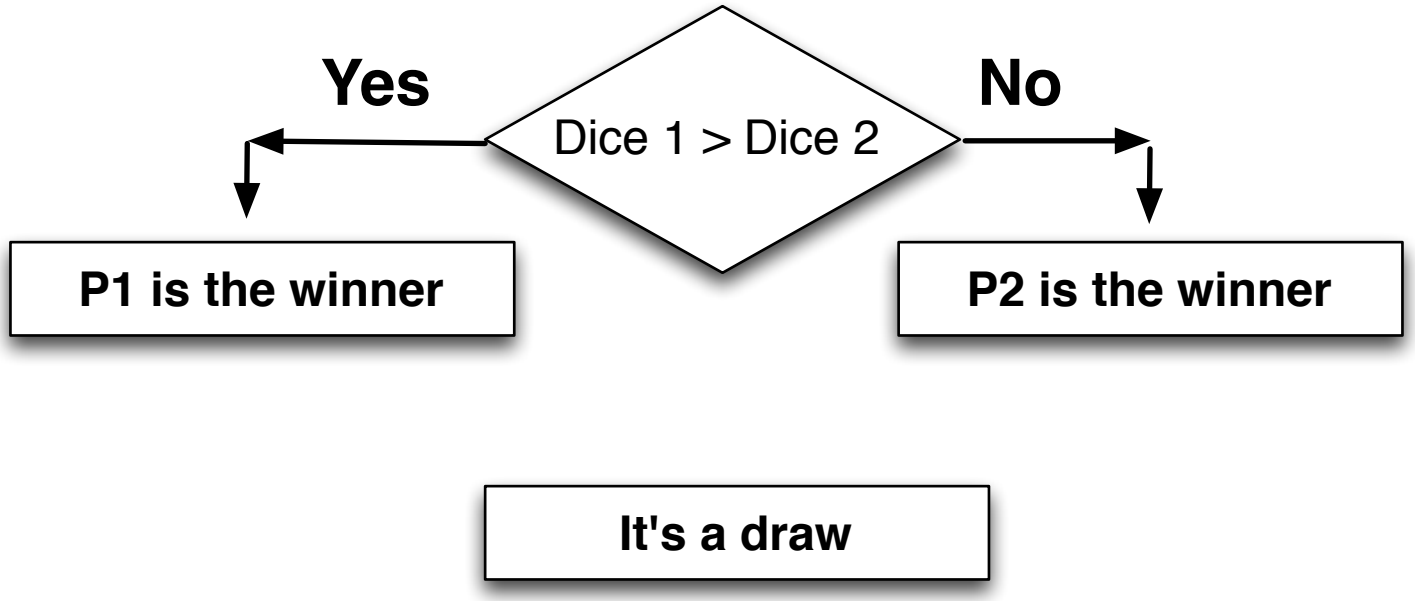
The condition is a Boolean condition: either is True or False

Logical operators: Boolean logic

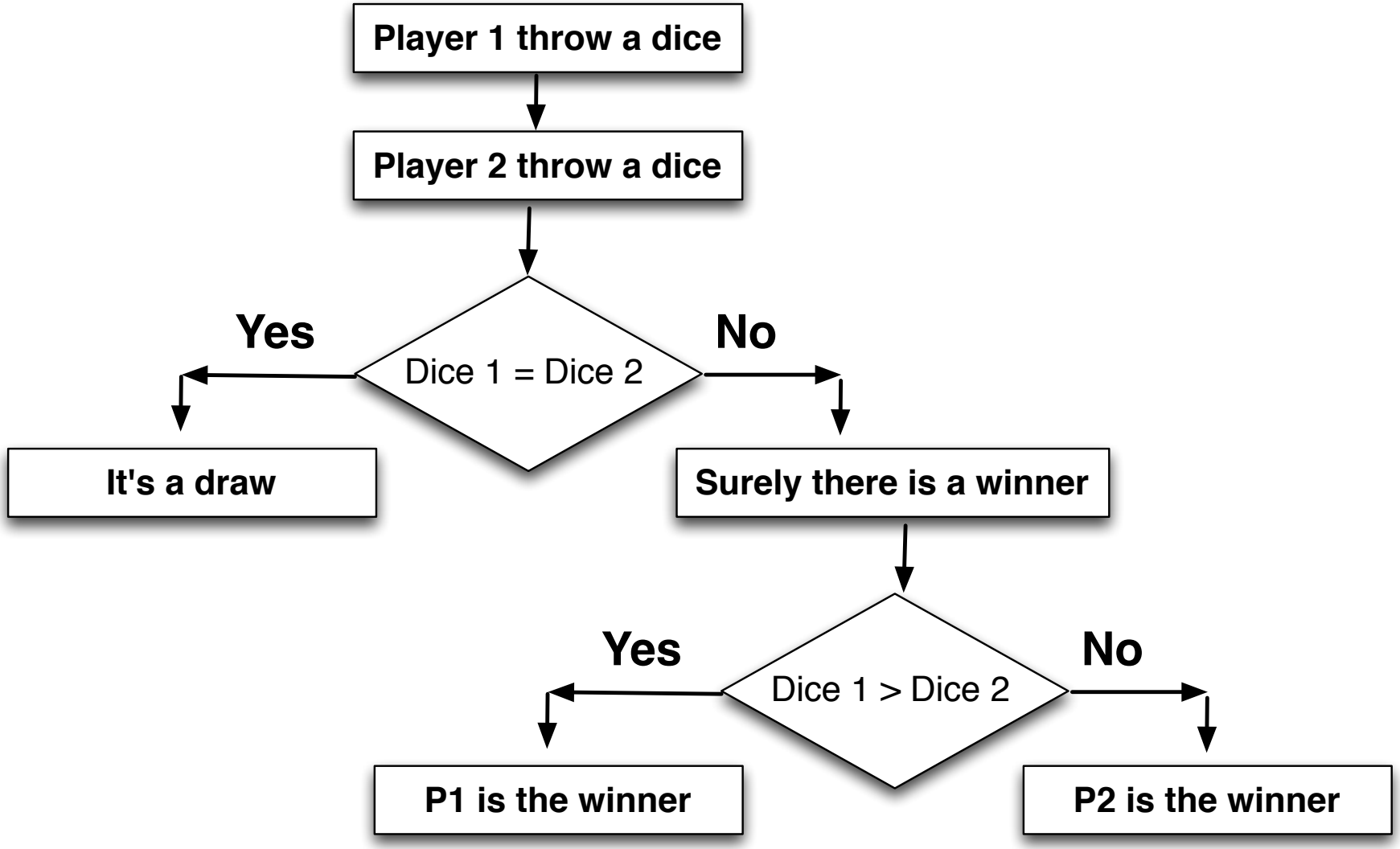
```
(a==b)   a equals b

(a!=b)   a not equal to b
(a<b)    a less than b
(a>b)    a greater than b
(a<=b)   a less or equal to b
(a>=b)   a greater or equal to b

(Condition1 and Condition2)   AND

(Condition1 or Condition2)    OR
```

a < x < b

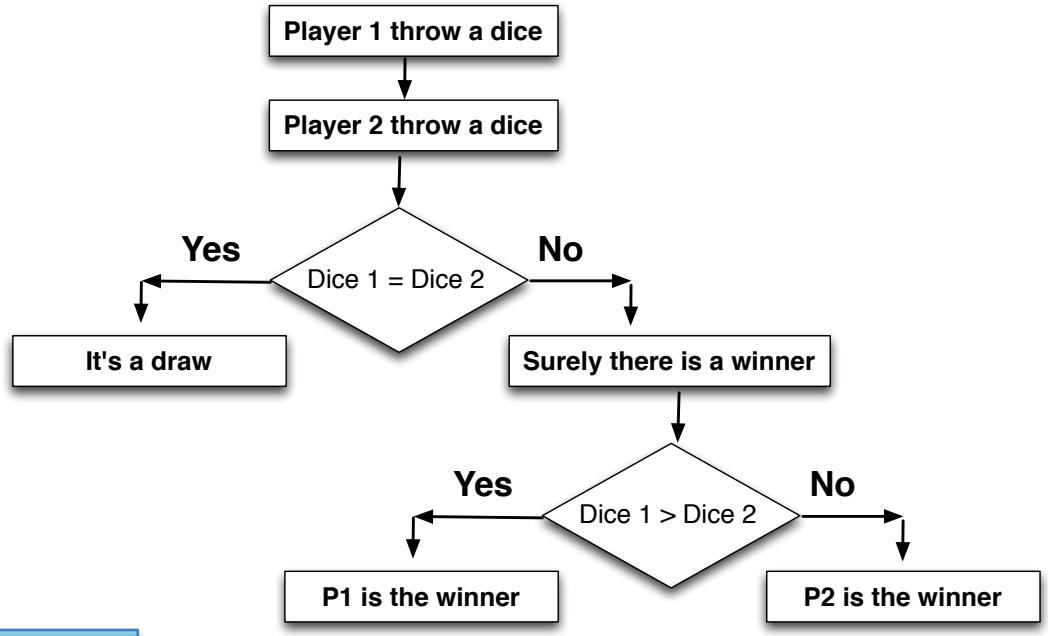
Flow control: Condition within a condition



Flow control: Condition within a condition

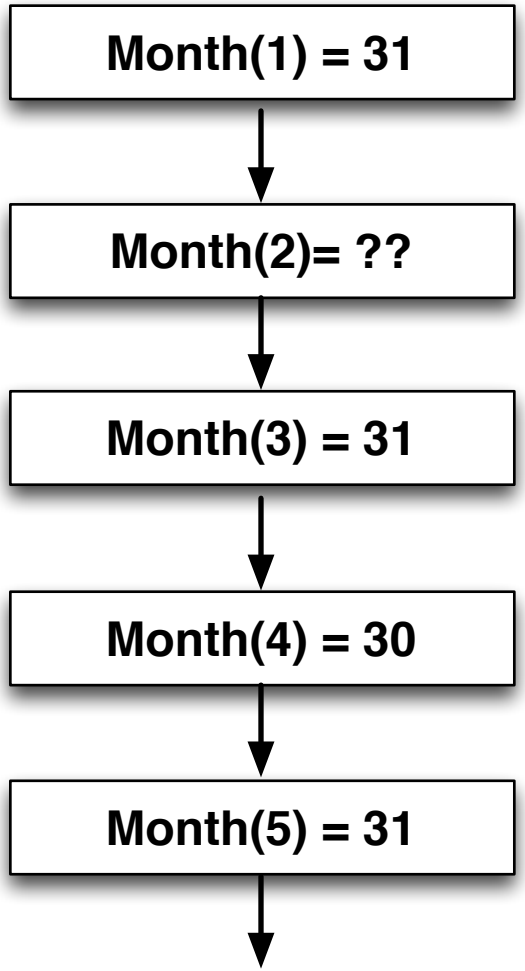


Flow control: Condition within a condition

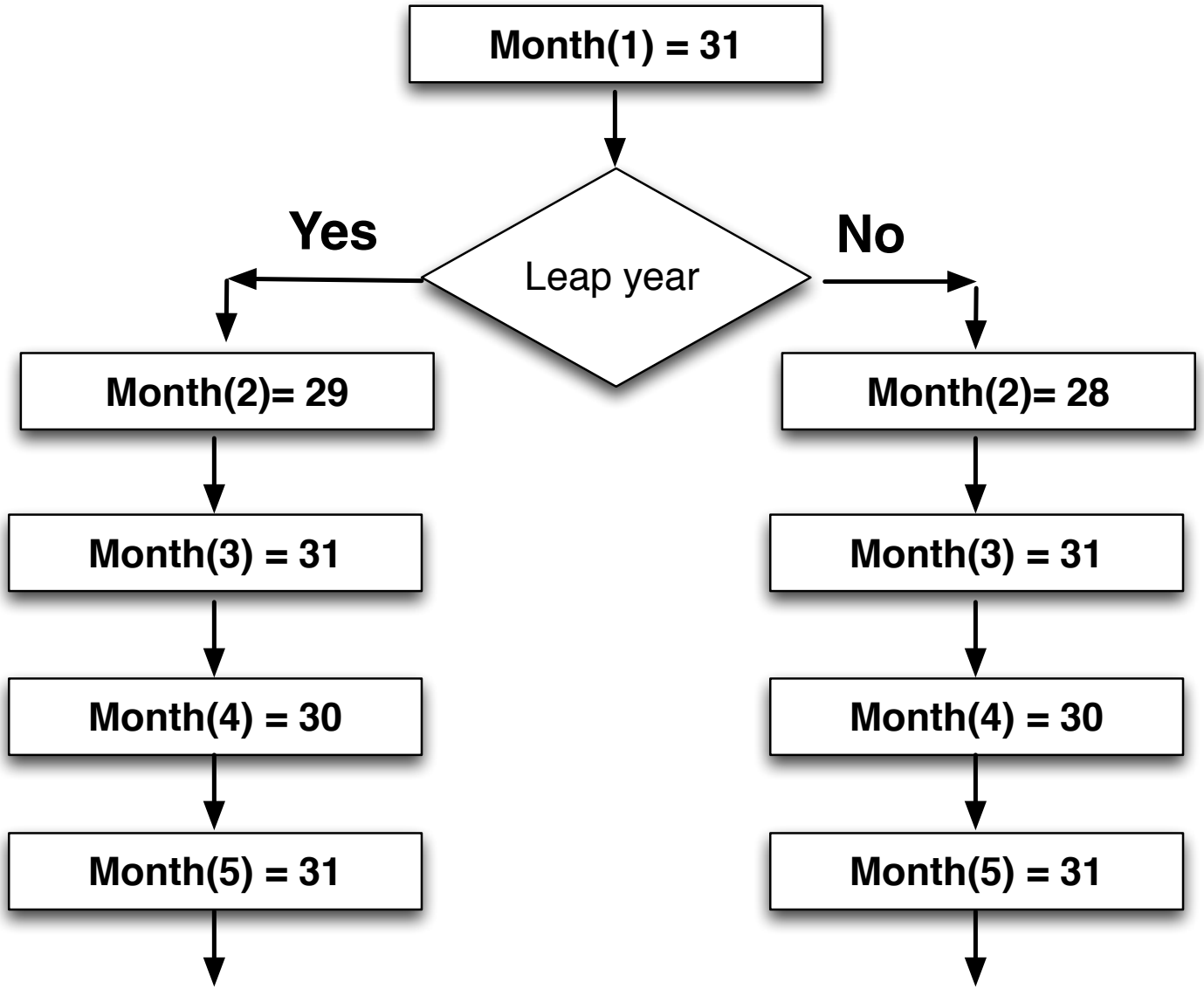



```
if Dice1 == Dice2:
    % it's a draw
    print('It's a draw')
else:
    % there is the winner
    if Dice1 > Dice2:
        % P1 is the winner
        disp('P1 is the winner')
    else:
        % P2 is the winner
        print('P2 is the winner')
```

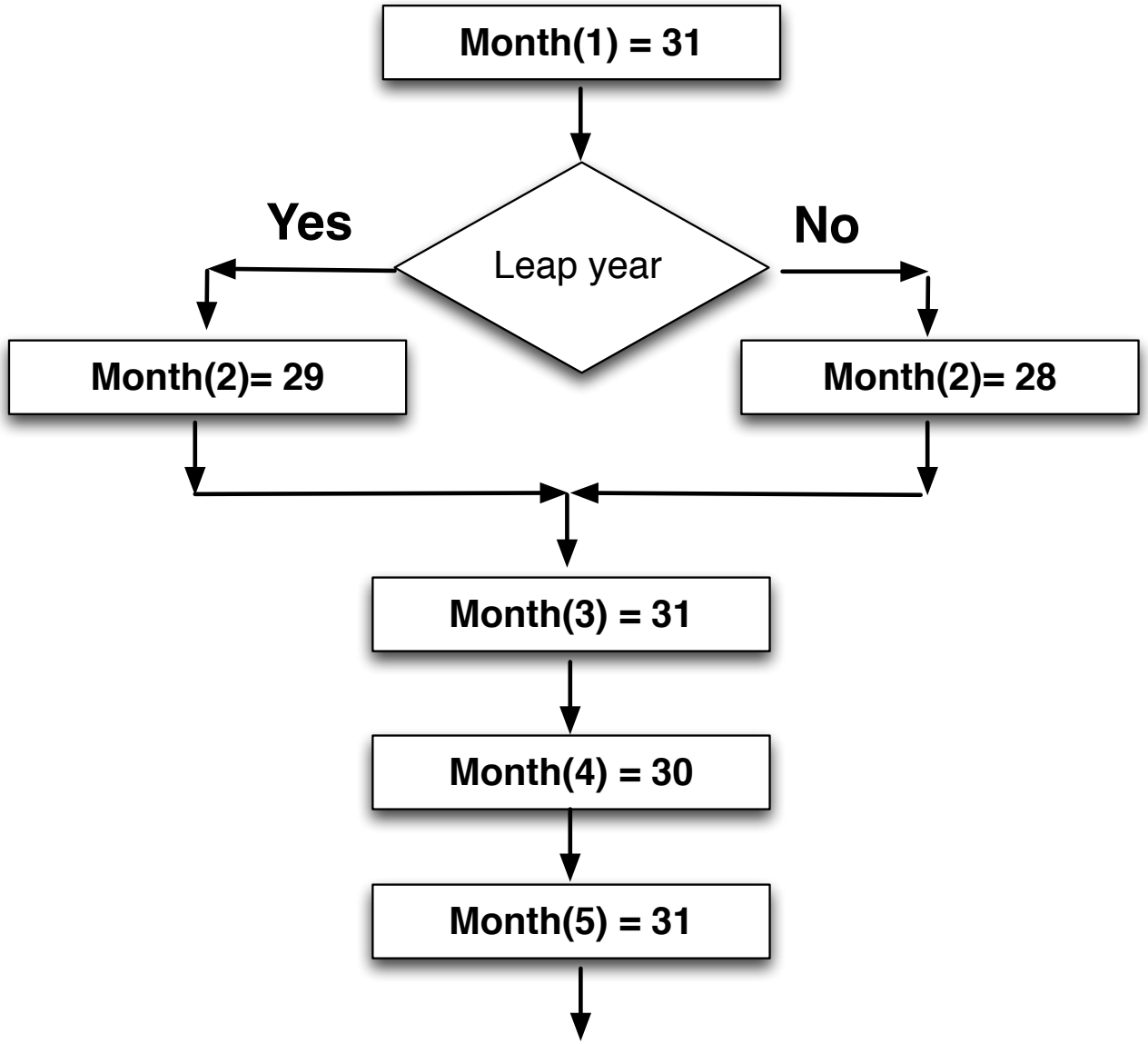
Common instructions



Common instructions



Common instructions



Libraries in Python

import math as mt: contains mathematical functions

```
math.sin()          mt.sin()
```

import matplotlib.pyplot as pl: contains plotting facilities

import random as rn: contains random numbers generator

`rn.random()` generates a random number between [0:1)

How to throw a dice:

```
dice = int(rn.random()*6 + 1)
```

Input & output of data

```
print()
```

```
N=input()
N=input('Gimme N: ')
```

Values are always read as a string

```
N=int(N)
N=float(N)
```

If we are looking for number, we need to convert

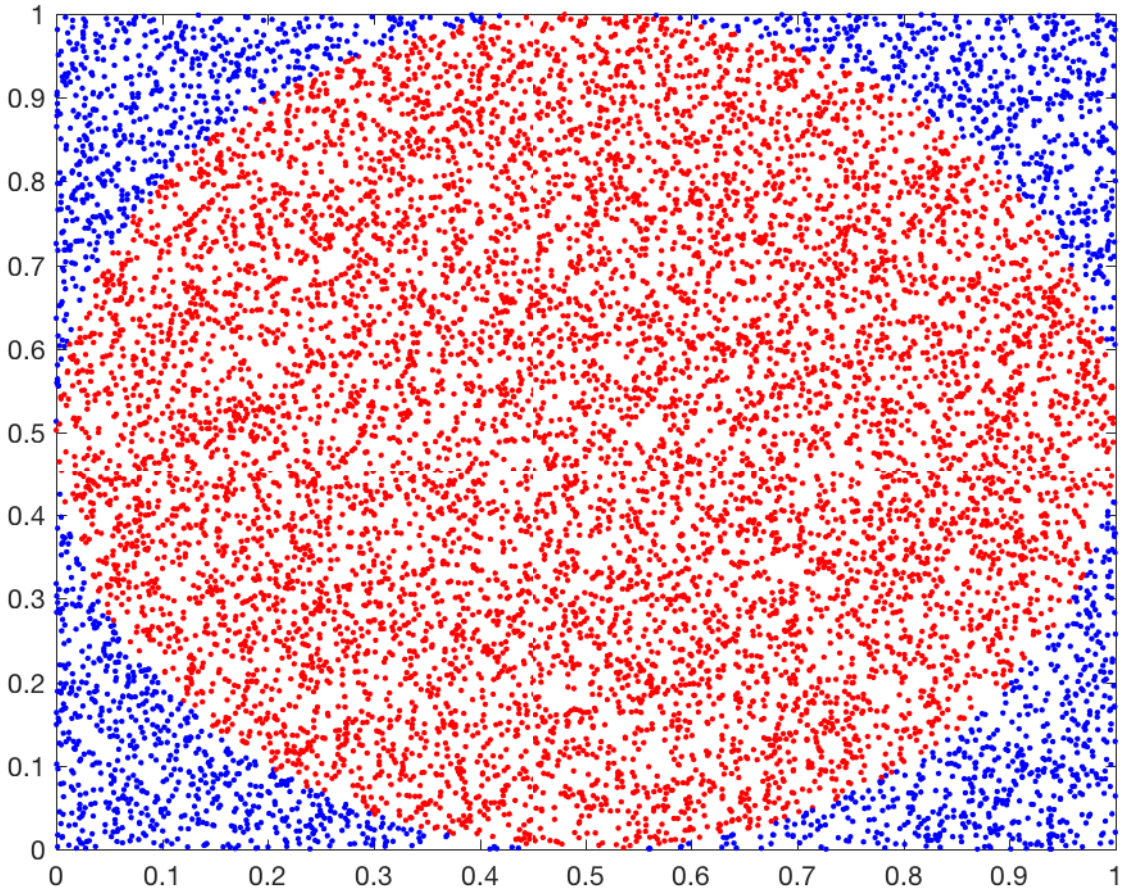
```
MyName=input('Insert your name: ')
```

Good practice: commenting your code

When writing a script:

"Comments, comments"

Finding Pi



Key points to remember

- **Lists can be traversed with a for loop**

- **Flow Control**: the flow can be controlled and split into two paths