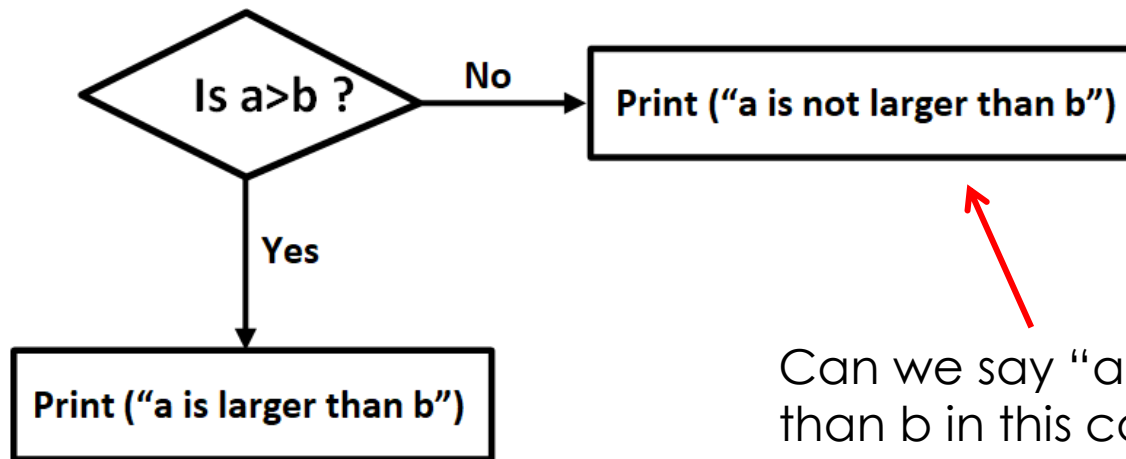


Condition and Branch Statements in Python Programs

Comparing values

- In writing any programs, we often need compare two (or more than two) values and then perform the next task according to the comparison results
- Example:



Can we say "a is smaller than b in this case"?

Comparing values

Operator:	Comparative test:
==	Equality
!=	Inequality
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

If-else statement

The indent indicates the blocks to be executed if (a>b)

The indent indicates the blocks to be executed if (a<=b)

```
a=10
b=22
if (a>b):
    print ("a is larger than b")
    print("The larger value is", a)
else:
    print("a is not larger than b")
    print("The larger value is", b)
print("The comparison is complete")
```

Note ":" symbol

This line is not indented, it will be executed regardless the relation between a and b

If-elif-else statement

```
a=10
b=10
if (a>b):
    print ("a is larger than b")
    print("The larger value is", a)
elif (a==b):
    print("a and b have the same value")
else:
    print("a is not larger than b")
    print("The larger value is", b)
```

If-else statement

- ❑ You can only use if without elif or else

```
a=10
b=11
if (a>b):
    print ("a is larger than b")
    print("The larger value is", a)
```

- ❑ You can have multiple elif

```
a=10
if (a<5):
    print("a is smaller than 5")
elif (a>100):
    print("a is larger than 100")
elif(a>8):
    print("a is larger than 8")
```

Logic operation

Operator:	Operation:
and	Logical AND
or	Logical OR
not	Logical NOT

Logic operation

a=10

b=12

if (a>0 and b>0):

print("Both a and b are positive numbers")

if (a>0 or b>0):

print("At least one of a and b is positive")

if (not a<0):

print("a is not a negative number")

Today's Challenge

Program to display date and time

```
import datetime
date_time = datetime.datetime.now()
date = date_time.date() # Gives the date
time = date_time.time() # Gives the time
print("Today is (Year Month Day):")
print(date.year, date.month, date.day)
print("The current time is (Hour Minute Second):" )
print(time.hour, time.minute, time.second)
```

Program output

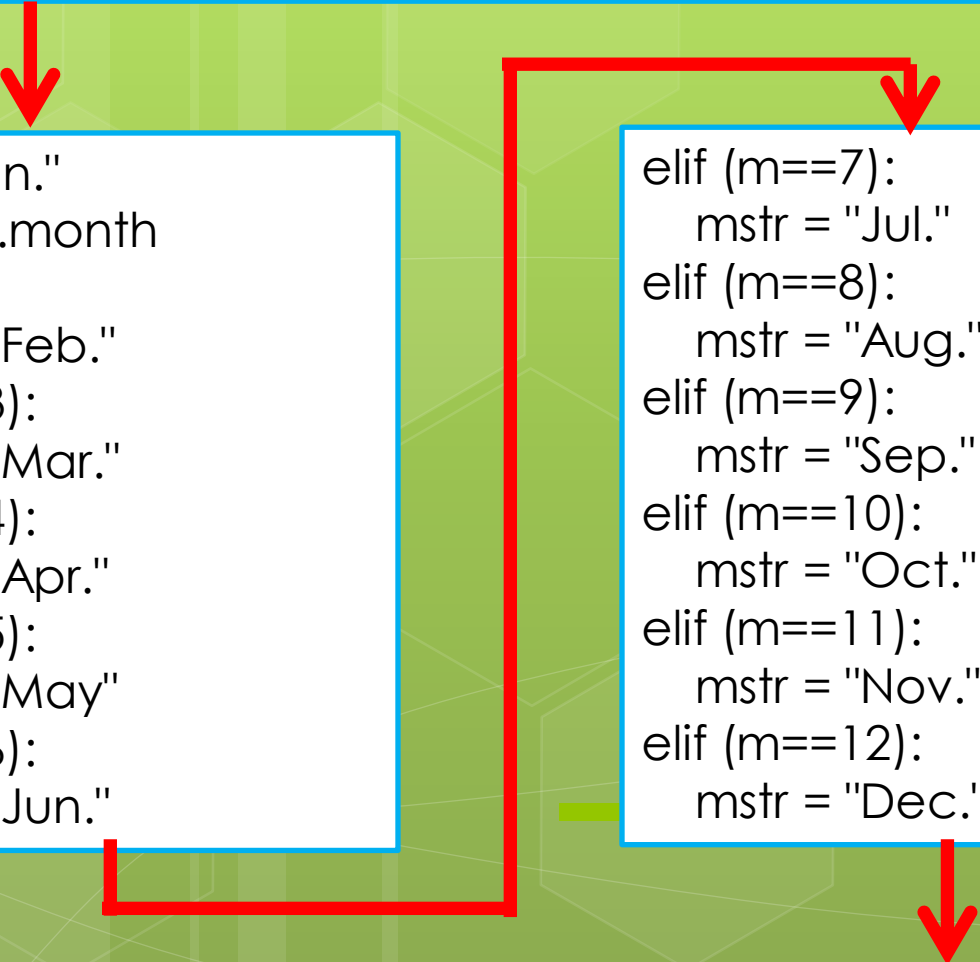
```
Today is (Year Month Day):
2019 5 31
The current time is (Hour Minute Second):
13 32 27
```

Can you make it to display date and time in this format?

```
Today is: May 31, 2019
The current time is: 1:49:39PM
```

Solution

```
import datetime
date_time = datetime.datetime.now()
date = date_time.date() # Gives the date
time = date_time.time() # Gives the time
```



```
mstr = "Jan."
m = date.month
if (m==2):
    mstr = "Feb."
elif (m==3):
    mstr = "Mar."
elif (m==4):
    mstr = "Apr."
elif (m==5):
    mstr = "May"
elif (m==6):
    mstr = "Jun."
```

```
elif (m==7):
    mstr = "Jul."
elif (m==8):
    mstr = "Aug."
elif (m==9):
    mstr = "Sep."
elif (m==10):
    mstr = "Oct."
elif (m==11):
    mstr = "Nov."
elif (m==12):
    mstr = "Dec."
```

Solution



```
hstr = "AM"  
h = time.hour  
if (h>12):  
    h=h-12;  
    hstr = "PM"
```

```
print("Today is: "+mstr+" "+str(date.day)+", "+str(date.year))  
tmp= str(h)+":"+str(time.minute)+":"+str(time.second)+hstr  
print("The current time is: "+tmp)
```