

Jin-Soo Kim
(jinsoo.kim@snu.ac.kr)

Systems Software &
Architecture Lab.
Seoul National University

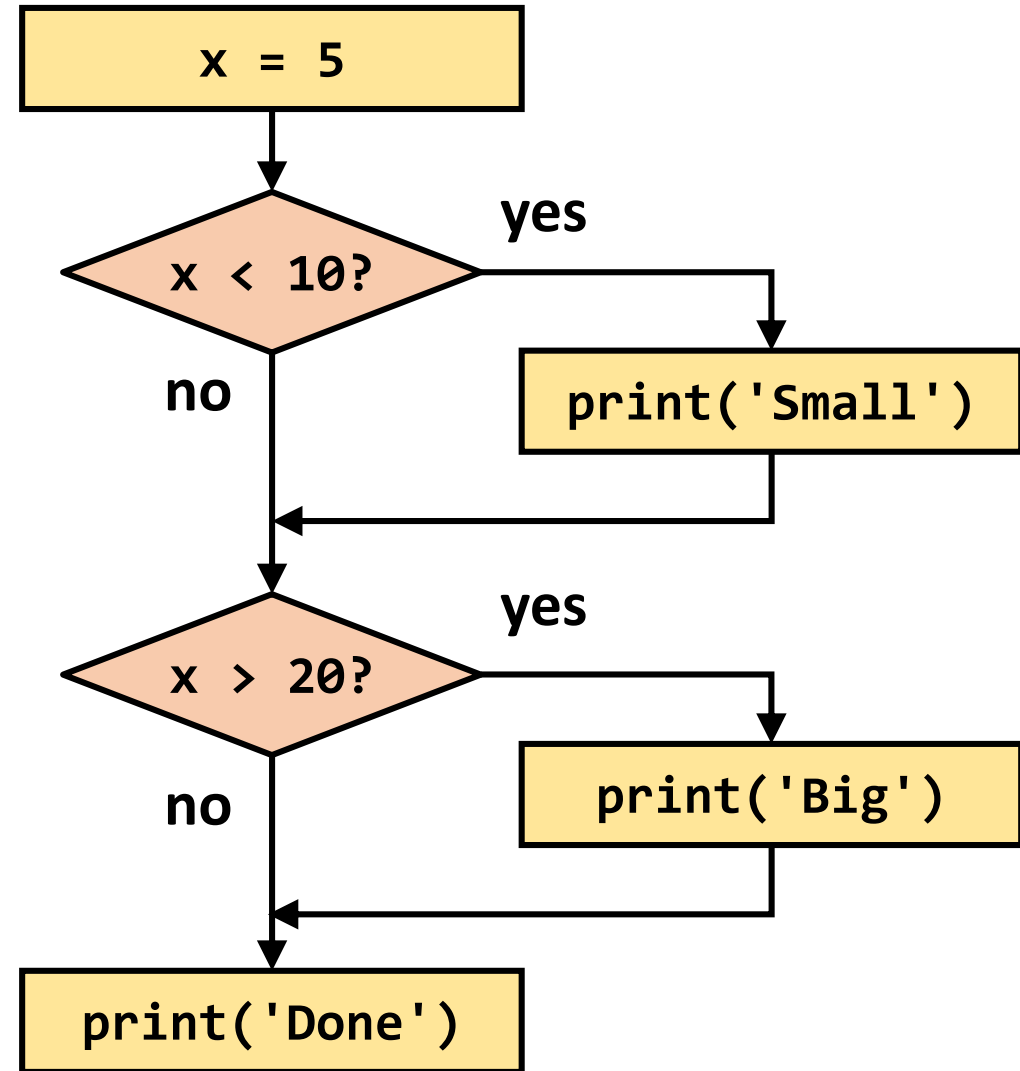
Dec 16 – 20, 2019

Conditionals



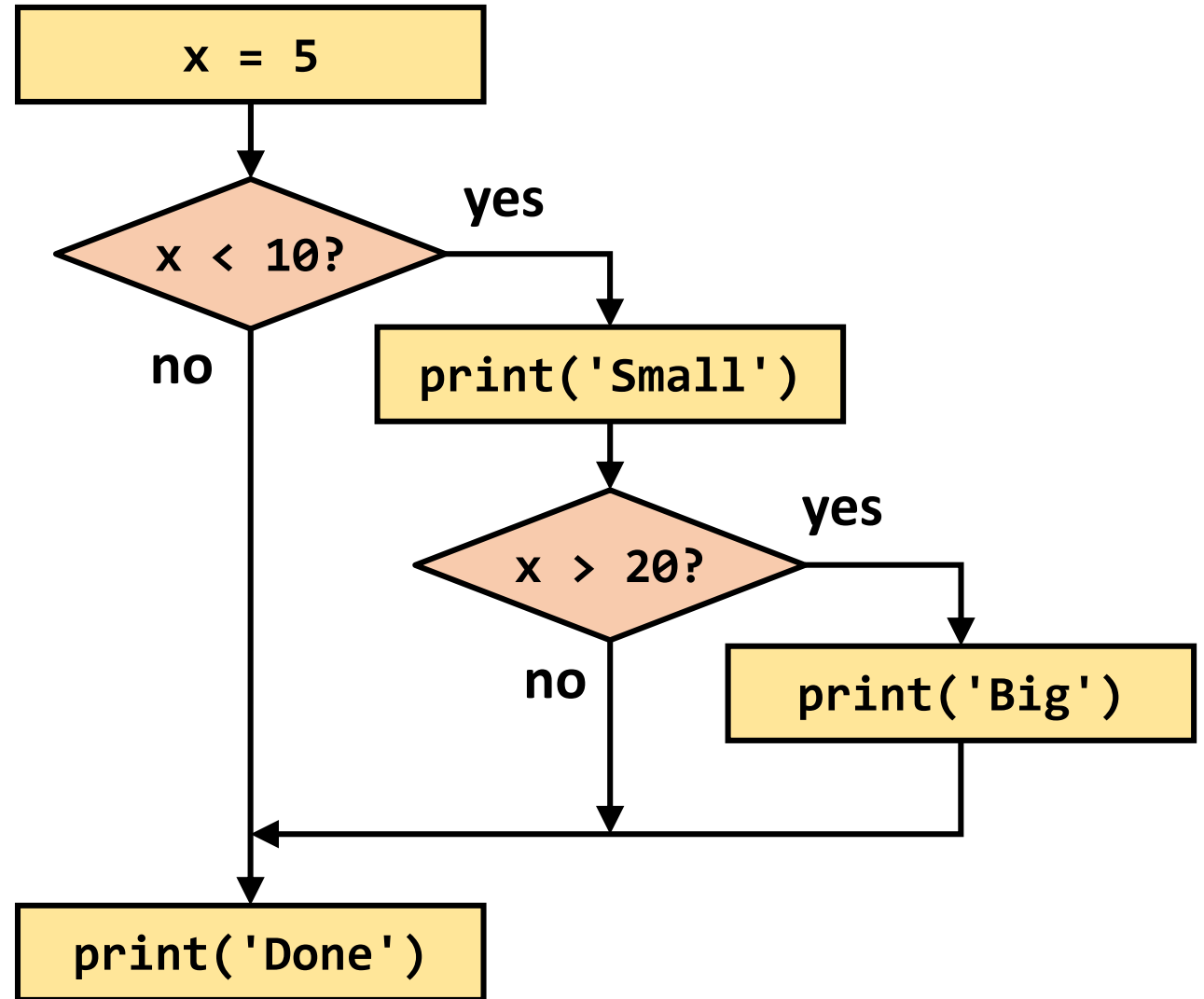
Conditional Steps

```
x = 5
if x < 10:
    print('Small')
if x > 20:
    print('Big')
print('Done')
```



Indentation Matters!

```
x = 5
if x < 10:
    print('Small')
    if x > 20:
        print('Big')
    print('Done')
```



Indentation

- Python does not use curly braces { } to indicate a block of statements
- Increase indent after an `if`, `elif`, `else`, `for`, `while` etc. statement
- Maintain indent to indicate the scope of the block
- Reduce indent back to indicate the end of the block
- Blank / comment lines are ignored
- Turn off tabs! (turn tabs into spaces)

```
if a < b:
    a = a + b
    print('here')
else:
    a = a - b
    print('there')
print('done')
```

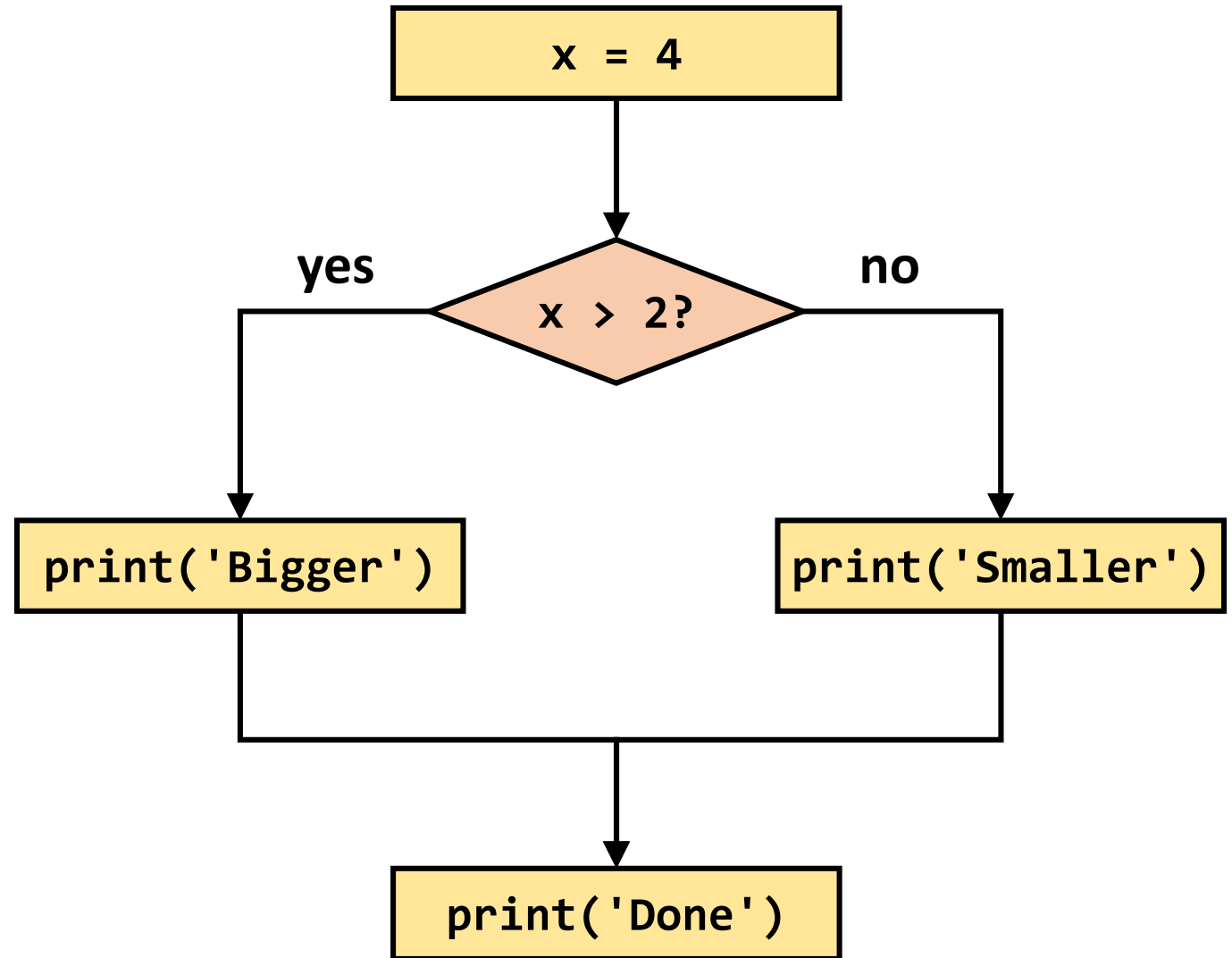
Evaluating Conditions

- Boolean expressions using comparison operators evaluate to **True** or **False**
- Several Boolean expressions can be combined using logical **and** / **or** / **not** operators
- Comparison operators do not change the variables

Notation	Meaning
a < b	True if a is less than b
a <= b	True if a is less than or equal to b
a == b	True if a is equal to b
a != b	True if a is not equal to b
a >= b	True if a is greater than or equal to b
a > b	True if a is greater than b
A and B	True if both A and B are True
A or B	True if either A or B (or both) is True
not A	True if A is False

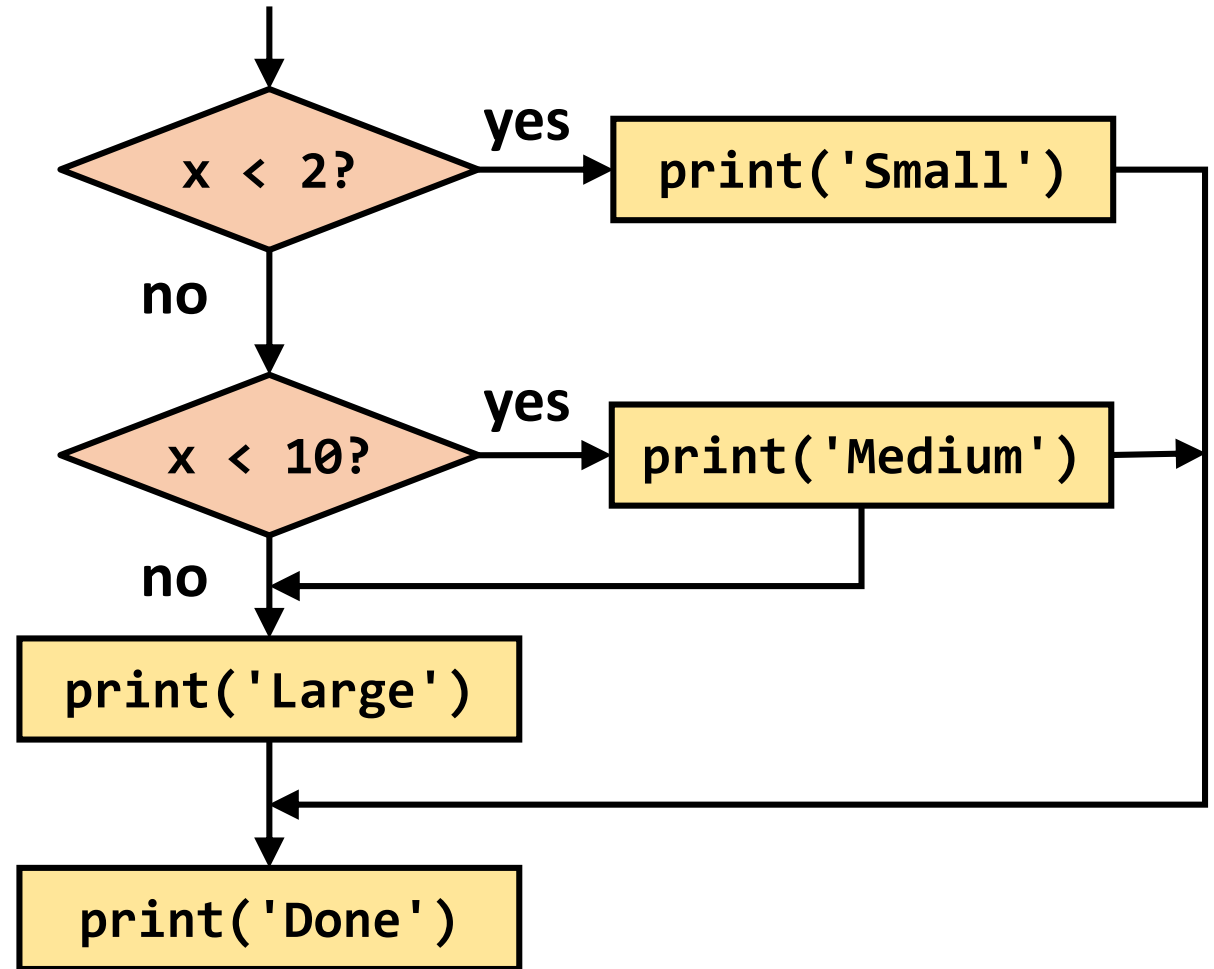
Two-way Decisions

```
x = 4
if x > 2:
    print('Bigger')
else:
    print('Smaller')
print('Done')
```



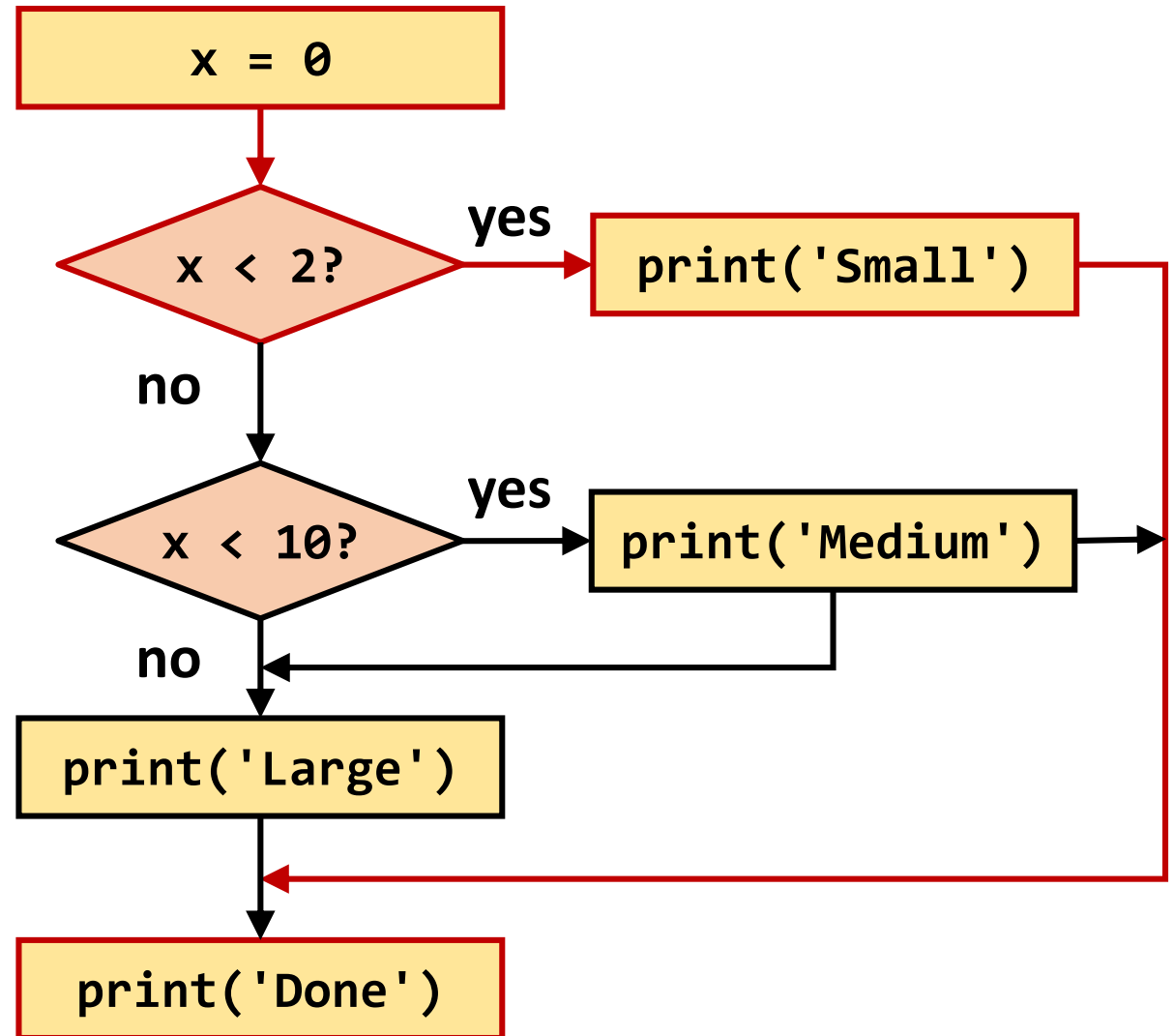
Multi-way Decisions (I)

```
if x < 2:  
    print('Small')  
elif x < 10:  
    print('Medium')  
else:  
    print('Large')  
print('Done')
```



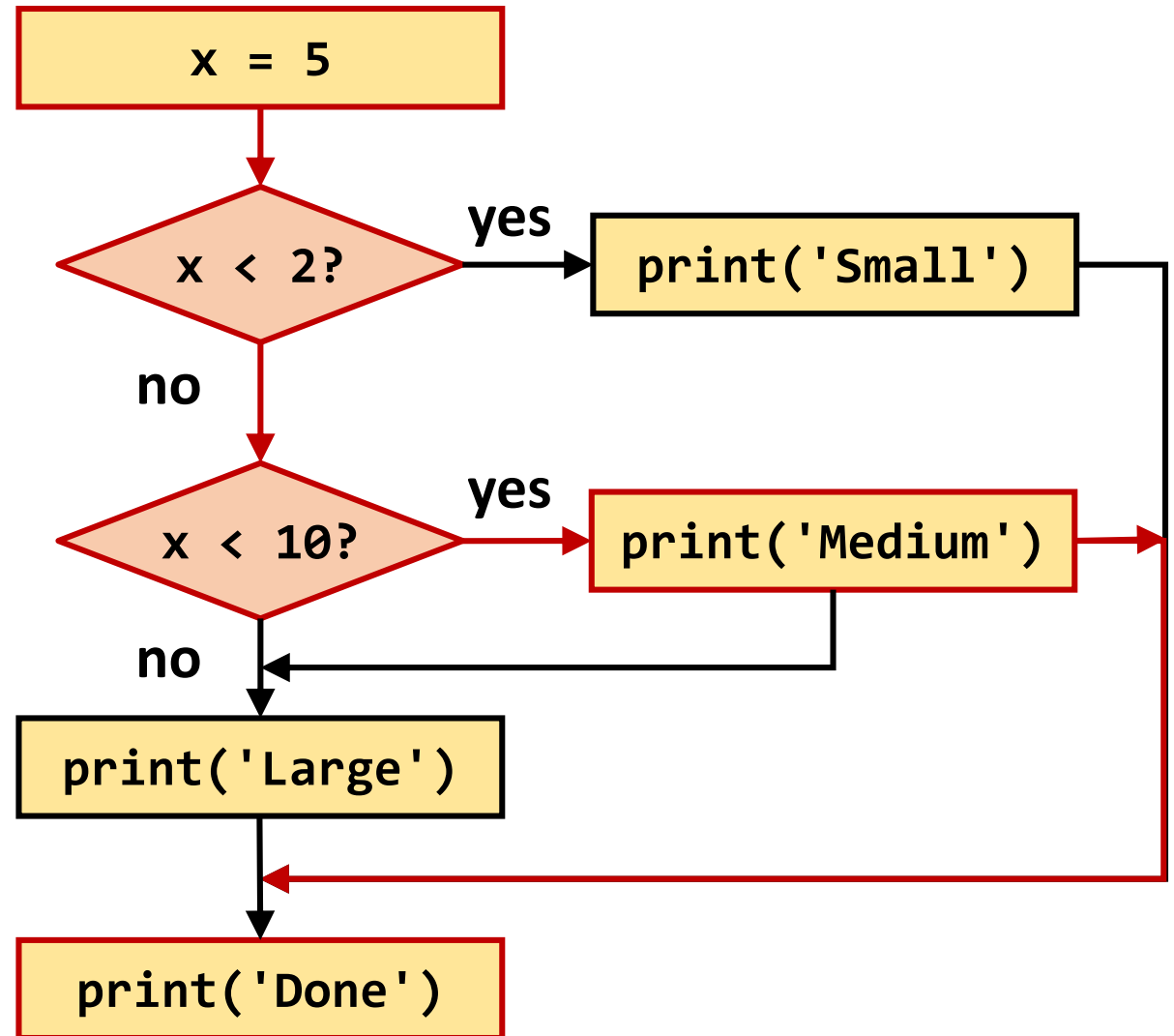
Multi-way Decisions (2)

```
x = 0
if x < 2:
    print('Small')
elif x < 10:
    print('Medium')
else:
    print('Large')
print('Done')
```



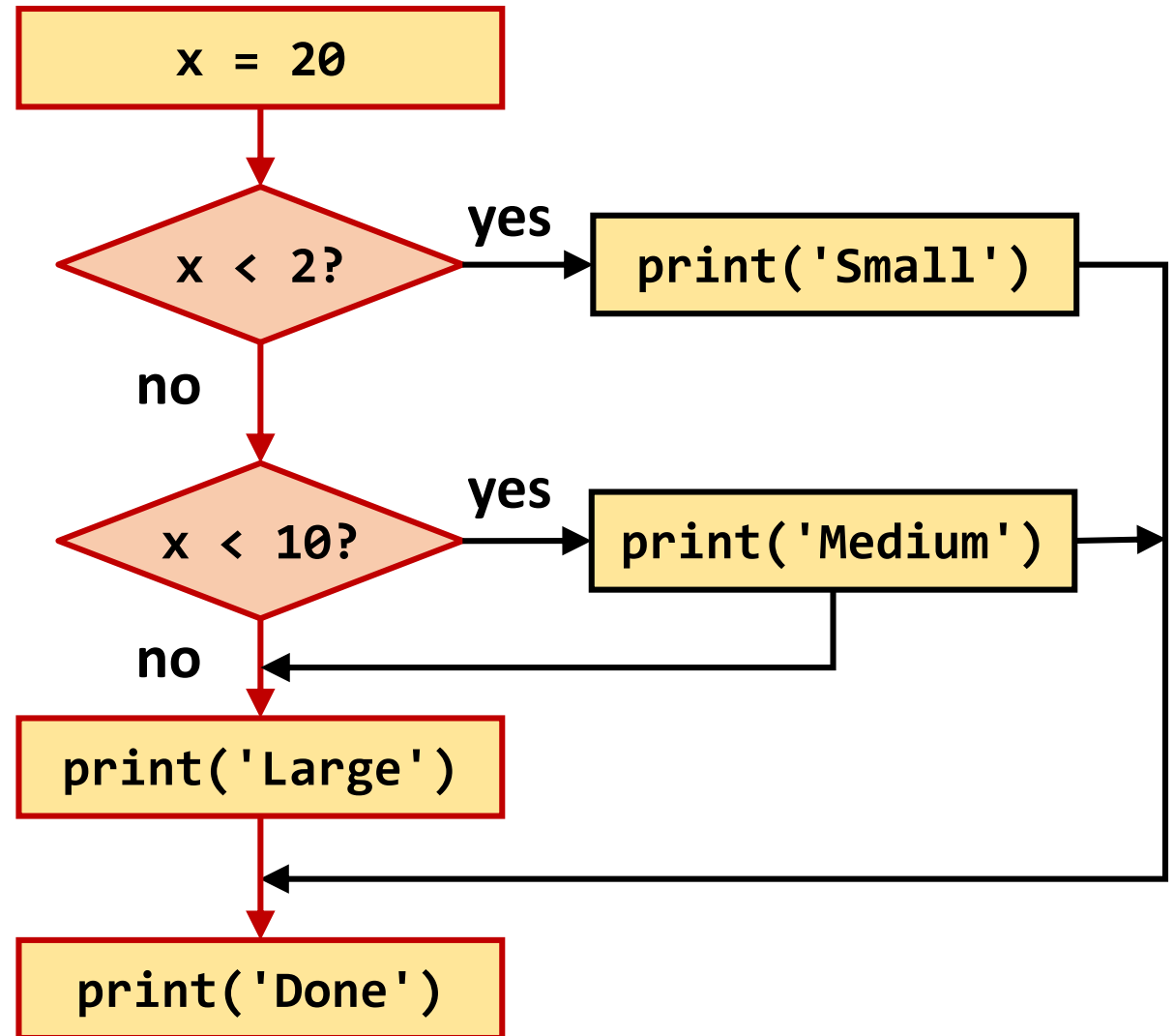
Multi-way Decisions (3)

```
x = 5
if x < 2:
    print('Small')
elif x < 10:
    print('Medium')
else:
    print('Large')
print('Done')
```



Multi-way Decisions (4)

```
x = 20
if x < 2:
    print('Small')
elif x < 10:
    print('Medium')
else:
    print('Large')
print('Done')
```



Multi-way Puzzles

- What's wrong with these programs?

```
if x < 2:
    print('Below 2')
elif x >= 2:
    print('Two or more')
else:
    print('Something else')
```

```
if x < 2:
    print('Below 2')
elif x < 20:
    print('Below 20')
elif x < 10:
    print('Below 10')
else:
    print('Something else')
```