CS65: Introduction to Computer Science

Assignment 1
While loop (continued)

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Topic: Solving Repetitive Task

- Assignment 1 review
  - Due on next Thursday, March 03

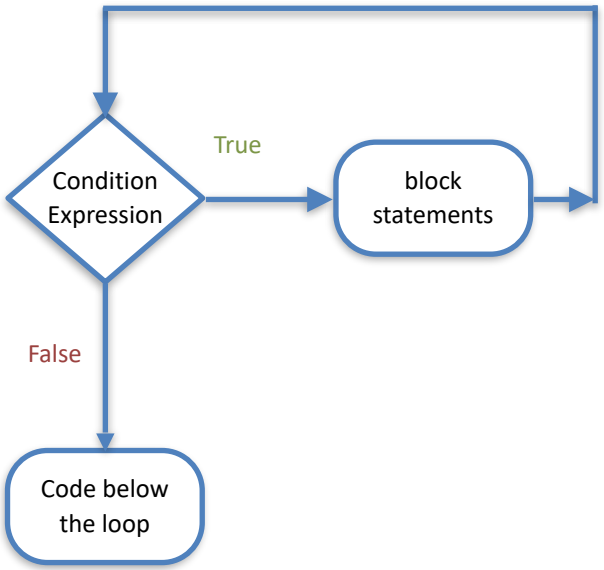
- Two different ways to solve a repetitive task in Python
  - The **while** loop

Topic: Solving Repetitive Task

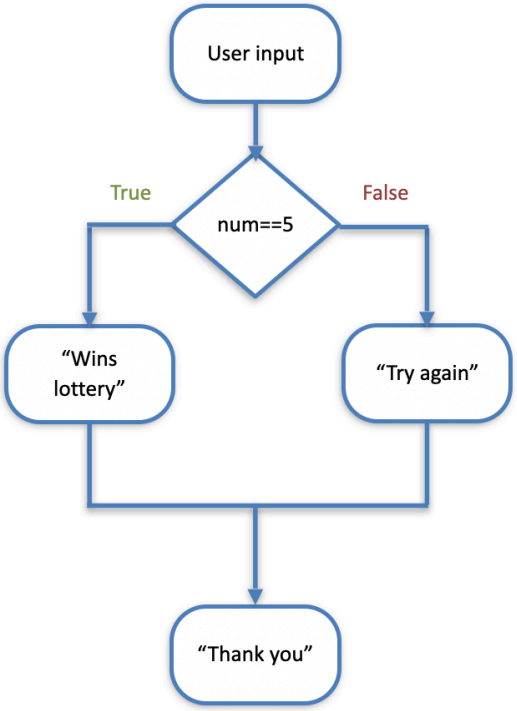
- Designed to solve a repetitive task — runs a block of code based on a Boolean expression:
  - Summing all the numbers from 0 to 100
  - Taking user inputs until a special number is provided

- Two different ways to solve a repetitive task in Python
  - The **while** loop
  - The **for** loop

while loop
vs
if/else selection statements



While loop



If/else blocks

The while Loop

- The index variable can be updated (**decreased**) with a shorthand:

```
num = 5

while num > 0:

    print(num)
    num = num - 1
```

```
>>> %Run lecture8_while.py

  5
  4
  3
  2
  1

>>>
```

```
num = 5

while num > 0:

    print(num)
    num -= 1
```

```
>>> %Run lecture8_while.py

  5
  4
  3
  2
  1

>>>
```

The while Loop

- The index variable can be updated (**increased**) with a shorthand:

```
num = 5

while num > 0:

    print(num)
    num = num + 1
```

```
num = 5

while num > 0:

    print(num)
    num += 1
```

Exercise 1

- Write a code that will do the following:
  - prompt the user for an integer (between 1 to 100)
  - then **computes** the sum of all number from 0 to the given number

Exercise 2

- Write a code that will do the following:
  - prompt the user for an integer number (between 1 to 100)
  - then **prints** all the even numbers between 0 and the given number

Exercise 2

- Write a code that will do the following:
  - Prompt the user to enter one integer number.
  - Then your program should find the summation of all the odd numbers between **1** and that integer number.
  - For example, if the user enters 5. Your program should print 6 as the summation of 1+3+5 is equal to 9.

Exercise 3

- Write a code that will do the following:
  - prompt the user for a state's name from the following:
    - {"NY", "PA", "MD", "VA"},
    - {"IA", "IN", "IL", "MN"},
    - {"TX", "LA", "FL", "AK"},
    - {"CA", "OR", "WA", "NV"}
  - then prints its geographic location from one of the categories:
    - "Eastern", "Midwestern", "Southern", "Western"
  - program will terminate only when the user enters "END"