PLAN 396 Lecture 10

Dr. Hossen Asiful Mustafa

https://hossenmustafa.buet.ac.bd

Creating while Loops

○ Repetition is another control structure

  ● Also known as looping

○ Need to make sure we can control and stop the looping structure

○ Example:

```
counter = 0
while counter <= 10:
    print counter
    counter+= 1
```

Avoiding Infinite Loops

- An infinite loop is a loop whose exit condition remains true never terminates

- Example:

```
counter = 0
while counter <= 10:
    print counter
```

- Often infinite loops are a form of logic error

  - but not always!

Treating Values and Conditions

- All expressions have a conditional value
  - That is all expressions (numeric, string, boolean, etc) will evaluate to either True or False

- Basic rule is this…
  - False is anything "empty" or "zero"
  - True is anything else ("non-empty" or "not zero")

Creating Intentional Infinite Loops

- Break – breaks out of a loop
  - Terminates the loop prior to the exit condition becoming false
- Continue – jump back to the top of the loop

```
i = 1
while i < 10:
    i+=1
    if i==5:
        continue
    print(i)
    if i==7:
        break
```

Understanding For Loops

○ For loops iterate over <u>every element</u> in a <u>sequence</u>

- A string is sequence of character elements

```
for letter in anyword:
        print letter
```

○ Example:

fruits = ["apple", "banana", "cherry"]
for x in fruits:
  print(x)

Range Function Examples

- Counting Forward
  - range(5)
  - range(10, 20)
- Counting Backward
  - range(20, 0, -1)
  - range(20, 10, -1)
- Counting by Different Amounts
  - range(0, 50, 5)
  - range(50, 0, -5)

```
for ii in range(10, 20):
    print(ii)

for ii in range( 20, 0, -1):
    print (ii)

for ii in range(0, 50, 5):
    print (ii)
```

Using Compound Conditions

- So far, conditional expressions are considered to be simple
  - Only one conditional operator is used
- Often programs must check more than one conditional expression to make decisions or to control loops
- Use **and**, **or**, and **not** to form compound conditions

Class Assignment

- Write a program named classassignment13.py

- The program should:
  - Generate a random number between 1-10
  - User can guess the generated number and input
  - Continue the process until user guesses correctly
  - Show the number of process when guess is correct