

While Loops

CAC 170

Anthony Winchester

Birmingham-Southern College

What is a loop again?

Loops

- Gives us the opportunity to repeat a task.
- Let's write a program to average grades...

Questions about Exercise

- Does it make sense to always only allow 3 grades?
- Is it convenient for the user to have to re-run the program to average grades for another student?

How do we fix this?

How do we fix this?
Loops!!!!

While Loop

- Does a task *while* a specified condition is true.

while condition:
 Do something

Notice we use
indentation like we
did with if statements

- Let's rewrite our example using loops

Sentinel Value

- This is a flag or dummy value that is used to indicate the termination of a loop.
- It should be a value that would never appear in the dataset.
- Examples...

Scenario	Sentinel
Grades	-1
Temperature	200

Infinite Loop

- Good or bad?

Infinite Loop

- Good or bad?
- Bad! The program will never stop running!
- To avoid this, make sure that whatever condition you have in your while statement can be reached.
- For example, if you have the condition:
 - `while x > 0:`
- Make sure that x is altered within your loop.

SEP Parameter and Print

The separator between the arguments to print() function in Python is space by default (softspace feature), which can be modified and can be made to any character, integer or string as per our choice. The 'sep' parameter is achieve the same, it is found only in python 3.x or later. It is also used for formatting the output strings.

- #code for disabling the Softspace feature

```
print ('G', 'F', 'G', sep=' ')
```

Answer:

GFG

- # for formatting a date

```
print('09','12', '2016', sep=' - ')
```

Answer:

09-12-2016

SEP Parameter and Print Cont.

- `print('pratik', 'geeksforgeeks', sep='@')`

Answer:

`pratik@geeksforgeeks`

SEP Parameter and Print Cont.

- `Print('G', 'F', sep="", end=' ')`
`print('G')`

Answer:

GFG

#\n provides new line after printing the year

```
print('09','12', sep='-', end='-2016\n')
```

Answer 09-12-2016

SEP Parameter and Print Cont.

- `print('prtk', 'agarwal', sep= ' ', end= '@')`
`print('geeksforgeeks')`

Answer:

prtkagarwal@geeksforgeeks

String Formatting

Python uses C – style formatting to create new formatted strings. The “%” operator is used to format a set of variables enclosed in a “tuple” (a fixed size list), together with a format string , which contains normal text together with “argument specifiers”, such as “%s” and “%d”.

String Template

- Format (variable, “specifier”)

Argument Specifiers

- %s – String (or any object with a string representation, like number)
- %d – Integers
- %f – Floating point numbers
- %. <number of digits>f – Floating numbers with a fixed amount of digits to the right of the dot.
- %x/%X – Integers in hex representation (lowercase/uppercase)

Practice

A particular zoo determines the price of admission based on the age of the guest. Guests 2 years of age and less are admitted without charge. Children between 3 and 12 years of age cost \$14.00. Seniors aged 65 years and over cost \$18.00. Admission for all other guests is \$23.00. Create a program that begins by reading the ages of all of the guests in a group from the user, with one age entered on each line. The user will enter a blank line to indicate that there are no more guests in the group. Then your program should display the admission cost for the group with an appropriate message. The cost should be displayed using two decimal places.