Conditional Statements

Code Girls 2021-22

Basic Data Types

- int
  - You can also do other bases!
- float (values with a decimal point)
  - 4.2, 4.0, 0.2,
- complex
- str
- bool
  - True or False

Prefix	Interpretation	Base
0b (zero + lowercase letter 'b') 0B (zero + uppercase letter 'B')	Binary	2
0o (zero + lowercase letter 'o') 0O (zero + uppercase letter 'O')	Octal	8
0x (zero + lowercase letter 'x') 0X (zero + uppercase letter 'X')	Hexadecimal	16

```
>>> 2+3j
(2+3j)
>>> type(2+3j)
<class 'complex'>
```

```
>>> 4.2
4.2
>>> type(4.2)
<class 'float'>
>>> 4.
4.0
>>> .2
0.2

>>> .4e7
4000000.0
>>> type(.4e7)
<class 'float'>
>>> 4.2e-4
0.00042
```

str

- Single or double quotes

- Escape sequences

  - Use a backslash (\)

  - Apply special interpretation to characters in a string

\"	Print the next character as a double quote, not a string closer
\'	Print the next character as a single quote, not a string closer
\n	Print a new line character (remember our print statements?)
\t	Print a tab character
\r	Print a carriage return (not used very often)
\$	Print the next character as a dollar, not as part of a variable
\\	Print the next character as a backslash, not an escape character

str

- Raw Strings
  - Preceded by r or R
    - print(r'foo\nbar') or print(R'foo\\bar')
  - Backslashes aren't translated and are left in the string

- Triple-Quoted Strings
  - Single quotes, double quotes, and newlines can be included without escaping them

Type Conversion

Function	Description
ascii()	Returns a string containing a printable representation of an object
bin()	Converts an integer to a binary string
bool()	Converts an argument to a Boolean value
chr()	Returns string representation of character given by integer argument
complex()	Returns a complex number constructed from arguments
float()	Returns a floating-point object constructed from a number or string

Function	Description
hex()	Converts an integer to a hexadecimal string
int()	Returns an integer object constructed from a number or string
oct()	Converts an integer to an octal string
ord()	Returns integer representation of a character
repr()	Returns a string containing a printable representation of an object
str()	Returns a string version of an object
type()	Returns the type of an object or creates a new type object

Random

import random

getrandbits(k)	Returns a Python integer with k random bits
randrange(start, stop[, step])	Returns a random integer from the range
randint(a, b)	Returns a random integer between a and b inclusive
choice(seq)	Return a random element from the non-empty sequence
shuffle(seq)	Shuffle the sequence
sample(population, k)	Return a k length list of unique elements chosen from the population sequence
random()	Return the next random floating point number in the range [0.0, 1.0)
uniform(a, b)	Return a random floating point number between a and b inclusive
triangular(low, high, mode)	Return a random floating point number between low and high, with the specified mode between those bounds

Conditional Operators

- Return boolean (True or False)
- Important for if/elif/else statements

Operator	Name	Example
==	Equal	5 == 5
!=	Not equal	26 != 3
>	Greater than	100 > 67
<	Less than	89 < 216
>=	Greater than or equal to	90 >= 54
<=	Less than or equal to	23 <= 77

Syntax of if/else

if ([statement]):

    [do stuff]

elif ([statement]):

    [do stuff]

else:

    [do stuff]

if ([statement]):

    [do stuff]

else:

    [do stuff]

if ([statement]):

    [do stuff]

elif ([statement]):

    [do stuff]

elif ([statement]):

    [do stuff]

else:

    [do stuff]

Practice - Die Simulator

- **Die Simulator (Demo)**
  - Roll a standard 6-sided (or higher) die
  - Display number and die face to user

Replit link:

https://replit.com/@CodeGirls1/21-22-Python-Lecture-2-DieRoller?v=1

Practice - Rock, Paper, Scissors

- **Rock, Paper, Scissors**
  - Ask user input
  - Display computer's random choice
  - Print out win/loss/tie

Replit link:

https://replit.com/@CodeGirls1/21-22-Python-Lecture-2-Rock-Paper-Scissors?v=1

Acknowledgments

Thanks to:

- Ms. B for sponsoring our club and guidance