Introduction to Python Programming

5 – Using LISTS.

Resources created by Andy Colley (@MrAColley)

Learning Goals/Objectives

Be able to read, comprehend, trace, adapt and create Python code that:

- Outputs one item from a **list**
- Outputs a whole list
- Changes an item in a list
- Adds an item to a list
- Removes an item from a list

repl.it

Variable or List?

Variable - stores **one** piece of data with an identifier.

```
player1 = Mary
player2 = Sean
player3 = Atif
```

List - stores **more than one** piece of data with the same identifier.

```
players = [“Mary”, “Sean”, “Atif”]
```

repl.it

Creating a List - How to Code

1 - **Name** the list. Use camelCase if it's more than one word.

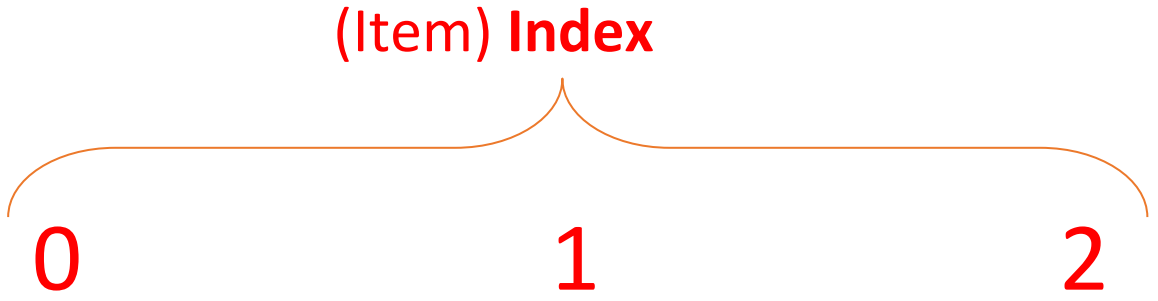
```
players = ["Mary", "Sean", "Atif"]
```

2 - The = symbol **assigns** data into the array

3 - All **the items in a list** are surrounded by square brackets with a comma between each one.

repl.it

Identifying One Item In A List




```
players = ["Mary", "Sean", "Atif"]
```

repl.it

Output From A List

Output One Item From A List

```
players = [“Mary”, “Sean”, “Atif”]


print(players[2])
```

1 - Use the **print** statement.

2 - Put the **name of the list** inside the normal brackets.

3 - Put the **index** (number) of the item you want to output **in square brackets.**

repl.it

Lists and Output

```
players = [“Mary”, “Sean”, “Atif”, “Steve”, “Lucy”]
```

```
print(players[5])
print(players[3])
print(players[1])
print(players[3] + players[4])
```

repl.it

Task - List Output

```
fruit = ["Apple", "Banana", "Grape", "Strawberry", "Melon", "Orange"]

# Task 1
  # Add comments to predict what the following lines of code will do.

  # Alter the fourth print command so that it outputs a vaild item from the list that
  hasn't yet been used.

print(fruit[3])

print(fruit[5])

print(fruit[0] + " " + fruit[2])

print(fruit[6])

# Task 2
  # Write code to output the whole list - you should be able to do this with one line of
  code.abs


# Task 3
  # Ask the user to input a number between 0 and 5.  Output the item in the list that
  matches the number they have input.
```

repl.it

Change & Edit Items in a List

Change One Item In A List

```
players = [“Mary”, “Sean”, “Atif”]

players[0] = “Bill”
```

1 - The **item (index)** in the list to be replaced

2 - The = symbol used for **assignment**.

3 - The new data to go into the list (at the index position.

repl.it

Lists and Assignment

```
players = [“Mary”, “Sean”, “Atif”, “Steve”, “Lucy”]
```

```
players[1] = “Oliver”

players[4] = “Jane”

players[2] = players[3]
```

repl.it

Task - List Assignment 1

```
# Task 1
countries = ["UK", "USA", "Chad", "Australia", "Thailand"]

# Add comments to the code to explain what the following lines do.

countries[3] = "Mexico"

countries[0] = "Iceland"

countries[1] = countries[4]

# Add comments to predict what the list looks like now.

# Add a line of code to print the whole list and check your prediction
```

repl.it

Task - List Assignment 2

```
# Task 2

squareNumbers = [1,4,9,16,25,36]

# Add comments to explain what the following lines of code do.

squareNumbers[5] = 49

squareNumbers[0] +=1

total = squareNumbers[3] - squareNumbers[1]

# Add comments to predict what the list looks like now.

# Add a line of code to print the whole list and check your prediction
```

repl.it

Add & Remove Items From A List

Add & Remove From A List

```
players = [“Mary”, “Sean”, “Atif”, “Steve”, “Lucy”]
```

```
players.remove(“Sean”)
players.pop()

players.append(“Dave”)
players.insert(2, “Julia”)
```

repl.it

Task - Add & Remove From A List 1

```
# Task 1

food = ["bacon", "cheese", "pasta", "beans"]

# Add comments to explain wht the following lines of code do.

food.append("tomatoes")

food.insert(1, "ice cream")

food.remove("cheese")

food.pop()

# Add a comment to predict what the list looks like open

# Write code to print the whole list.  Was your prediction correct?
```

repl.it

Task - Add & Remove From A List 2

```
videoGames = ["Mario", "Sonic", "Joust", "Zelda"]

#Task 2

# Write code to perform the following tasks.

  # Add 'Minecraft' to the start of the list.

  # Ask the user to input a number between 0 and 4 and store it in a variable.
  Output the item at this position in the list.

  # Ask the user to input the name of a video game and store it in a variable.
  If this video game is in the list then remove it from the list.  If it isn't
  in the list then add it to the end.
```

repl.it

Task - Independent Challenge

- Create an array called 'names' that **stores five names** in it (you choose the names).
- Ask the user what their name is. Store their input in a variable.
- Ask the user to enter a number between 0 and 4. Store their input in a variable.
- Replace the data at the position that matches the number entered by the user in the names array with their name.

repl.it

Find An Item In A List

Find An Item In A List

```
players = [“Mary”, “Sean”, “Atif”, “Steve”, “Lucy”]
```

```
if “Atif” in players:
    run this code
else:
    run that code
```

Homework Challenge - Beat The Zombie!

- Create a list of possible weapons.
- In a variable called ‘zombieWeakness’ store the name of one of the weapons from the list.
- Output messages telling the user that they have encountered a zombie and should prepare to fight.
- Output the list of weapons to the user. Ask if they want to type 1 to use one from the list or 2 to pick their own. If they type 1 then they should input the weapon name - store it to a new variable. If they type 2 they should input the weapon name - add it to the list and save it to a new variable.
- If the weapon picked matches the zombieWeakness, output a message telling the user that they have won the fight. Otherwise output a message saying that they have lost.

repl.it