Accelerating Information Technology Innovation

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Nigeria Summer 2012
Lecture 2 – Control Structures
Agenda

• Goal
  – Break up “How are y555ou” into “How”, “are”, “you”

• Learn about
  – If...Else
  – Loops
    • While
    • For
    • For...Else
    • Break
    • Continue
    • Nested Loops
Do it Once with If...Elif...Else

```python
def printFirstLetter(words):
    if words[0].isalpha():
        print(words)
    elif words[0].isspace():
        print("space")
    else:
        pass
```

```python
g>>> printFirstLetter("Hello")
Hello
g>>> printFirstLetter(" ")
space
```

Loop

```python
def parsewords_while(words):
    currentword = ""
    index = 0
    while index < len(words):
        if words[index].isalpha():
            currentword += words[index]
        elif words[index].isspace():
            print(currentword)
            currentword = ""
        else:
            pass
        index += 1
    else:
        print(currentword)
```

```python
g>>> parsewords_while("How are y555ou")
How are

>>> parsewords_while("How are y555ou")
How are you
```
def parsewords_while(words):
    currentword = ""
    index = 0

    while index < len(words):
        if words[index].isalpha():
            currentword += words[index]
        elif words[index].isspace():
            print(currentword)
            currentword = ""
        else:
            break
            index += 1
    else:
        print(currentwords)

>>> parsewords_while("How are you")
How are you
Loops

### While...Else

```python
def parsewords_while(words):
    currentword = ""
    index = 0
    while index < len(words):
        if words[index].isalpha():
            currentword += words[index]
        elif words[index].isspace():
            print(currentword)
            currentword = ""
        else:
            print(currentword)
            currentword = ""
            index += 1
    else:
        print(currentwords)

>>> parsewords_while("How are you")
How are you
```

### For...Else

```python
def parsewords_for(words):
    currentword = ""
    for index in range(len(words)):
        if words[index].isalpha():
            currentword += words[index]
        elif words[index].isspace():
            print(currentword)
            currentword = ""
        else:
            print(currentword)
            currentword = ""
    else:
        print(currentword)

>>> parsewords_for("How are you")
How are you
```

```python
>>> range(5)
[0, 1, 2, 3, 4]
```

```python
>>> range(2,6)
[2, 3, 4, 5]
```

```python
>>> range(-10,5,2)
[-10, -8, -6, -4, -2, 0, 2, 4]
```
Loops

For...Else (Alternate)

def parsewords_for(words):
currentword = ""

for char in words:
    if char.isalpha():
        currentword += char
    elif char.isspace():
        print(currentword, currentword = ""
    else:
        print(currentword)

else:
    print(currentword)

>>> parsewords_for("How are y555ou")
How are you

For...Else

def parsewords_for(words):
currentword = ""

for index in range(len(words)):
    if words[index].isalpha():
        currentword += words[index]
    elif words[index].isspace():
        print(currentword, currentword = ""
    else:
        print(currentword)

else:
    print(currentword)

>>> parsewords_for("How are y555ou")
How are you
def parsewords_for(words):
    currentword = ""
    for char in words:
        if char.isalpha():
            currentword += char
        elif char.isspace():
            for letter in currentword:
                print letter,
            currentword = ""
        else:
            print currentword

>>> parsewords_for("How are y555ou")
H ow a reyou
Why we need control structures

- Decide what to do next
- Do certain actions for certain events
- Repeat a series of actions
- Break a series of actions