CS 160
CS Orientation

Programming Structure
Chap. 4
Sequential Logic Structure

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Flowchart</th>
<th>Pseudocode</th>
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<tbody>
<tr>
<td>...</td>
<td><img src="image" alt="Diagram" /></td>
<td>...</td>
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<tr>
<td>5. Instruction</td>
<td>Instruction</td>
<td>Instruction</td>
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<td>6. Instruction</td>
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<td>7. Instruction</td>
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<td>8. ...</td>
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Python Sequential Logic

print("   *   ")
print("  ***  ")
print(" ***** ")
print("*******")
print("*********")
 Decision Logic Structure

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<tr>
<td>5. If &lt;decision&gt; then Instruction else Instruction</td>
<td><img src="chart.png" alt="Decision Flowchart" /></td>
<td>If &lt;decision&gt; then Instruction else Instruction Endif</td>
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<tr>
<td>6. : :</td>
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<td>: :</td>
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Python Decision Logic

```python
x=1
if(x==1):
    print("   *   ")
if(x==3):
    print("  ***  ")
if(x==5):
    print(" ***** ")
else:
    print("*******")
```

```python
x=1
if(x==1):
    print("   *   ")
elif(x==3):
    print("  ***  ")
elif(x==5):
    print(" ***** ")
else:
    print("*******")
```
# Loop Logic Structure

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<td>5. Loop</td>
<td><img src="image" alt="Flowchart Diagram" /></td>
<td>Loop Instruction</td>
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<td>Instruction</td>
<td>Instruction Until &lt;logical expression&gt;</td>
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*OSU Oregon State University*
Python Loop Logic

for x in range(7):
    print("*", end="")

OR

x=1
while(x<=7):
    print("*", end="")
    x+=1
Make the Original w/ an if/elif

x=0

if(x == 0):
    print("   *   ")
    print("  ***  ")
    print(" ***** ")
    print("*******")
    print("*********")
Make the Original w/ an if/elif

w=1
x=3
y=5
z=7
if(w == 1):
    print("   *")
if(x==3):
    print("  ***")
if(y==5):
    print(" ****")
if(z==7):
    print("*******")
# Make the Original w/ a Loop

# Created on Oct 22, 2012
# @author: jacobbroderick

# Change the variable limit to change how many times the loop iterates.
# For every iteration the loop will add a row to the pyramid

limit = 4
star = '*'
z=1
starPlus= '***'
space= ' '

spaceAmmount= limit + 5
for i in range(0,limit):
    space = space*spaceAmmount
    print(space+star)
    star=star+starPlus
    spaceAmmount= spaceAmmount-1
    space=' '
Make the Original w/ a Loop

sp=3
x=1
for b in range(sp):
    print(" ", end="")
for b in range(x):
    print("*",end="")
for b in range(sp):
    print(" ", end="")
print(""")
sp=2
x=3
for b in range(sp):
    print(" ", end="")
for b in range(x):
    print("*",end="")
for b in range(sp):
    print(" ", end="")
print(""")
Make the Original w/ a Loop

sp=1
x=5
for b in range(sp):
    print(" ", end="")
for b in range(x):
    print("*",end="")
for b in range(sp):
    print(" ", end="")
print(""
sp=0
x=7
for b in range(sp):
    print(" ", end="")
for b in range(x):
    print("*",end="")
for b in range(sp):
    print(" ", end="")
print(""")