

# Repeating Code Using Loops

1.

```
for phenotype in celegans_phenotypes:  
    print(phenotype)
```

2.

```
for value in half_lives:  
    print(value, end=' ')
```

3.

```
more_whales = []  
for count in whales:  
    more_whales.append(count + 1)
```

4. a.

```
alkaline_earth_metals = [[4, 9.012], [12, 24.305],  
                        [20, 40.078], [38, 87.62],  
                        [56, 137.327], [88, 226]]
```

b.

```
for inner_list in alkaline_earth_metals:  
    print(inner_list[0])  
    print(inner_list[1])
```

c.

```
number_and_weight = []  
for inner_list in alkaline_earth_metals:  
    number_and_weight.append(inner_list[0])  
    number_and_weight.append(inner_list[1])
```

5.

```
def mystery_function(values):  
    """ (list) -> list  
  
    Return a copy of the list, values, and the sublists it contains.  
    The top-level sublists have their elements reversed in the returned  
    list.
```

```
>>> mystery_function([[1, 2, 3], [4, 5, 6]])  
[[3, 2, 1], [6, 5, 4]]  
"""
```

```
result = []  
for sublist in values:  
    # Copy the sublist in reverse order by inserting each  
    # element to the front of the new sublist.  
    result.append([sublist[0]])
```

```
        for i in sublist[1:]:
            result[-1].insert(0, i)

    return result
```

6.

```
text = ""
while text.lower() != "quit":
    text = input("Please enter a chemical formula (or 'quit' to exit): ")
    if text == "quit":
        print("...exiting program")
    elif text == "H2O":
        print("Water")
    elif text == "NH3":
        print("Ammonia")
    elif text == "CH4":
        print("Methane")
    else:
        print("Unknown compound")
```

7.

```
total = 0
for population in country_populations:
    total += population
```

8. a.

```
if rat_1[0] > rat_2[0]:
    print("Rat 1 weighed more than rat 2 on day 1.")
else:
    print("Rat 1 weighed less than rat 2 on day 1.")
```

b.

```
if rat_1[0] > rat_2[0] and rat_1[-1] > rat_2[-1]:
    print("Rat 1 remained heavier than Rat 2.")
else:
    print("Rat 2 became heavier than Rat 1.")
```

c.

```
if rat_1[0] > rat_2[0]:
    if rat_1[-1] > rat_2[-1]:
        print("Rat 1 remained heavier than Rat 2.")
    else:
        print("Rat 2 became heavier than Rat 1.")
else:
    print("Rat 2 became heavier than Rat 1.")
```

9.

```
for number in range(33, 50):  
    print(number)
```

10.

```
for number in range(10):  
    print(10 - number, end=' ')
```

11.

```
sum = 0  
count = 0  
for number in range(2,23):  
    sum += number  
    count += 1
```

```
average = sum / count
```

12.

```
def remove_neg(num_list):  
    index = 0  
    while index < len(num_list):  
        if num_list[index] < 0:  
            del num_list[index]  
        else:  
            index += 1
```

13.

```
for width in range(1, 8):  
    print('T' * width)
```

14.

```
for width in range(1, 8):  
    print(' ' * (7 - width), 'T' * width, sep='')
```

15.

```
width = 1  
while width < 8:  
    print('T' * width)  
    width += 1
```

```
width = 1  
while width < 8:  
    print(' ' * (7 - width), 'T' * width, sep='')  
    width += 1
```

16. a.

```
week = 1
while rat_1_weight[week] / rat_1_weight[0] - 1 < .25:
    week += 1

print(week)
```

b.

```
week = 0
while rat_1_weight[week] / rat_2_weight[week] - 1 < .10:
    week += 1

print(week)
```