LOOPS SOLUTIONS

TASK 1: CONVERT FOR LOOP INTO A WHILE LOOP

WORK WITH

```
numbers = list(range(0, 110, 10))
numbers = [0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

first = []
for num in numbers:
    s = num *2.5
    if s % 2 == 0:

        first.append(s)
first
```

DESIRED OUTPUT

[0, 50, 100, 150, 200, 250]

HINTS?

1. For the **while** loop, have x < **len**(numbers).
2. The most import line of code in a **while** loop to prevent an **INFINITE LOOP** is **x += 1**.
3. Create an empty **list** called second.
4. Start with an initial value of 0.

In [7]:

```
numbers = list(range(0, 110, 10))
numbers
first = []
for num in numbers:
    s = num *2.5
    if s % 2 == 0:

        first.append(int(s))
first
```

Out[7]:

```
[0, 50, 100, 150, 200, 250]
```

In [5]:

```
x = 0
second = []
while x < len(numbers):
```

```
    t = numbers[x] *2.5

    if t % 2 == 0:
        second.append(t)
    x += 1
second
```

Out[5]:

```
[0.0, 50.0, 100.0, 150.0, 200.0, 250.0]
```

In [6]:

```
numbers
```

Out[6]:

```
[0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

TASK 2: USE LEN WITH CONTROL FLOW IN A FOR LOOP

WORK WITH

```
rep = ["Joe", "K", "Mike", "Joi", "Luv", "Deckard", "Wallace", "Rachel"]
```

DESIRED OUTPUT

Joe is a replicant
Mike is NOT a replicant
Joi is a replicant
Luv is a replicant
Deckard is NOT a replicant
Wallace is NOT a replicant
Rachel is a replicant

HINTS?

1. In the **for** loop, use the **len** function three times
2. Use the **print** statement twice.
3. The **if** statement requires three **or** operators.

In [20]:

```
rep = ["Joe", "Mike", "Joi", "Luv", "Deckard", "Wallace", "Rachel"]

for i in rep:
    if len(i) == 3 or len(i) == 6 or len(i) == 1:
        print(i,"is a replicant")

    else:
        print(i,"is NOT a replicant")
```

```
Joe is a replicant
Mike is NOT a replicant
```

```
Joi is a replicant
Luv is a replicant
Deckard is NOT a replicant
Wallace is NOT a replicant
Rachel is a replicant
```

TASK 3: FOR LOOP WITH NESTED WHILE LOOP

WORK WITH

```
# Add Code Here
for r in range(2):
    # Add Code Here
    # Add Code Here
        # Add Code VV
         k  % 2 == 0:
            print("Question")
        # Add Code VV
         k > 3 and k < 7:
            print("CELL")

        # Add Code VV
         k == 3:
            print("INTERLINKED")
        # Add Code HERE
            print("CELL WITHIN CELLS")
        # Add Code HERE!!!
# Add Code Here
```

DESIRED OUTPUT

Human
Question
CELL WITHIN CELLS
Question
INTERLINKED
Question
CELL
Question
CELL WITHIN CELLS
Question
CELL WITHIN CELLS
Question
INTERLINKED
Question
CELL
Question
CELL WITHIN CELLS
Time to Finish

HINTS?

1. Use a for loop with **range** to repeat **while** loop
2. Use k += 1 with **while** loop and k < 8.
3. Use **if**, 2 **elif** statements, and an **else** statement in your **while** loop.
4. Total of 6 different **print** statements. 4 are inside the **while** loop.

In [1]:

```
print("Human")
for r in range(2):
    k = 0
    while k < 8:
        if k  % 2 == 0:
            print("Question")
        elif k > 3 and k < 7:
            print("CELL")
        elif k == 3:
            print("INTERLINKED")
        else:
            print("CELL WITHIN CELLS")
        k+= 1
print("Time to Finish")
```

```
Human
Question
CELL WITHIN CELLS
Question
INTERLINKED
Question
CELL
Question
CELL WITHIN CELLS
Question
CELL WITHIN CELLS
Question
INTERLINKED
Question
CELL
Question
CELL WITHIN CELLS
Time to Finish
```

TASK 4: NESTED FOR LOOP IN A WHILE LOOP

WORK WITH

```
print("Y =", y)
        print("________")
        print("X is equal to", x)
        print("________")
```

DESIRED OUTPUT

```
`python
START
```

```
Y = 0

________
X is equal to 4

________
Y = 2

________
X is equal to 5

________
Y = 4

________
X is equal to 6

________
Y = 6

________
X is equal to 7

________
Y = 8

________
X is equal to 8

________
END
```

HINTS?

1. Code a nested **for** loop inside a **while** loop with y < 8.
2. Initial values for y and x are 0
3. Two **print** statements outside the **while** loop
4. Use a **range** of 4 to 9 in the **for** loop.

In [59]:

```
x = 0
y = 0
print("START")
while y < 8:
    for x in range(4, 9):
        print("Y =", y)
        print("________")
        print("X is equal to", x)
        print("________")
        y += 2 ; x += 1
print("END")
```

```
START
Y = 0

________
X is equal to 4

________
Y = 2

________
X is equal to 5

________
Y = 4

________
X is equal to 6

________
```

```
________
Y = 6

________
X is equal to 7

________
Y = 8

________
X is equal to 8

________
END
```

TASK 5: FOR LOOP TO FIX STUDENT NAMES

WORK WITH

```
students = ["nAtalie", "M", "Fa ye", " Callum", "Tara"]
```

DESIRED OUTPUT

('NATALIE', 'FAYE', 'TARA', 'CALLUM')

HINTS?

1. Create an empty list.
2. Use **len** built-in function.
3. Use also the upper, replace and append methods for **list**
4. Lastly, convert output to a **tuple**.

In [45]:

```
students = ["nAtalie", "M", "Fa ye", " Callum", "Tara"]

names = []
for i in students:
    if len(i) > 1:
        s = i.upper().replace(" ", "")
        names.append(s)
tuple(names)
```

Out[45]:

```
('NATALIE', 'FAYE', 'CALLUM', 'TARA')
```

TASK 6: FOR LOOP WITH ADDED VALUES FROM DICTIONARY

WORK WITH

```
d1 = {"k1": [20, 30, 40], "k2": [1000, 2000, 3000]}
```

DESIRED OUTPUT

Total = 1020
Total = 2030
Total = 3040

End loop

HINTS?

1. Use one **for** loop with **range**.
2. Add the values from both keys together

In [8]:

```
d1 = {"k1": [20, 30, 40], "k2": [1000, 2000, 3000]}

for i in range(3):

            print("Total =", d1["k1"][i] + d1["k2"][i])
print("End loop")
```

```
Total = 1020
Total = 2030
Total = 3040
End loop
```

TASK 7: WHILE LOOPS WITH THREE INPUTS

WORK WITH

```
prices = {"popcorn": 5, "soda": 2, "veggie burger": 7}
total = []

val = 0
while val < 2:
    num1 = input("Would you like popcorn with the film? ")
    if num1 == "no":
        None
    elif num1 == "quit":
        print("Enjoy the film")
        break


print("That will be $" + str(sum(total)))
print("Enjoy the film!")
```

DESIRED OUTPUT

1st EXAMPLE

Would you like popcorn with the film? no
Would you like a soda drink? no
Would you like a veggie burger?no
That will be $0
Enjoy the film!

2nd EXAMPLE

Would you like popcorn with the film? yes
Would you like a soda drink? yes
Would you like a veggie burger?no
That will be $7
Enjoy the film!

3rd EXAMPLE

Would you like popcorn with the film? quit
Enjoy the film

HINTS?

1. Create two more inputs and name them num2 and num3.
2. For num2, **print** would you like a soda? and for num3, **print** would you like a veggie burger?
3. Use the append function three times by grabbing values from the prices dictionary.
4. Use the **break** statement a total of 4 times.
5. Make sure you have the += 1 to prevent an **INFINITE LOOP!**
6. Use three **else** statements.

In [42]:

```
prices = {"popcorn": 5, "soda": 2, "veggie burger": 7}
total = []

val = 0
while val < 2:
    num1 = input("Would you like popcorn with the film? ")
    if num1 == "no":
        None
    elif num1 == "quit":
        print("Enjoy the film")
        break
    else:
        total.append(prices["popcorn"])

    num2 = input("Would you like a soda drink? ")
    if num2 == "no":
        None

    elif num1 == "quit":
        print("Enjoy the film")
        break
    else:
        total.append(prices["soda"])

    num3 = input("Would you like a veggie burger?")
    if num3 == "no":
        None
    elif num1 == "quit":
        print("Enjoy the film")
        break
    else:

        total.append(prices["veggie burger"])

    val += 1
```

```
    print("That will be $" + str(sum(total)))
    print("Enjoy the film!")
    break
```

```
Would you like popcorn with the film? quit
Enjoy the film
```