Lecture 8

Concept of Loops in Python Part 1

While Loop in Python

```python
In [1]: count = 1
        while count <= 5:
            print(count)
            count += 1
```

```
1
2
3
4
5
```

Write a Python program to print all the even numbers between 1 and 50 using a while loop

In [2]:
```python
# Initialize the starting number
num = 1

# Iterate through numbers from 1 to 50
while num <= 50:
    # Check if the number is even
    if num % 2 == 0:
        print(num)
    # Increment the number
    num += 1
```

```
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
```

Develop a Python program to simulate exponential growth. Prompt the user to enter the initial population size, growth rate, Use a while loop to simulate the growth until the population reaches a certain threshold.

In [5]:
```python
initial_population = int(input("Enter the initial population size: "))
growth_rate = float(input("Enter the growth rate (in percentage): "))

threshold_population = int(input("Enter the threshold population size: "))

population = initial_population
i= 0

while population < threshold_population:
    population = population + (population * growth_rate *0.01)
    i = i + 1

# Output the results
print("The population reached the threshold of this iterations",i)
print(f"Final population size", population)
```

```
Enter the initial population size: 5000
Enter the growth rate (in percentage): 10
Enter the threshold population size: 15000
The population reached the threshold of this iterations 12
Final population size 15692.141883605005
```

While loop , using if else

In [ ]:
```python
You are tasked with validating user input
for email addresses. Write a Python program
that prompts the user to enter an email address.
Use a while loop to iterate through the input and
check if the email address contains an "@" symbol
and a "." symbol. If the email address does not meet
these criteria, print "Invalid email address format.
Please try again." Otherwise,
print "Email address validation passed
```

In [6]:
```python
email = input("Please enter your mail address")

# Initialize a flag to track validation status
valid_email = False

# Start the loop
while not valid_email:
    # Check if email contains "@" and "."
    if "@" in email and "." in email:
        print("Email address validation passed.")
        valid_email = True
    else:
        print("Invalid email address format. Please try again.")
        email = input("please enter your mail address")
```

```
Please enter your mail addressswatigmail.com
Invalid email address format. Please try again.
please enter your mail addressswati@gmail.com
Email address validation passed.
```

Infinite - while loop

In [ ]:
```python
age = 32
while age > 18:
    print('You can vote')
```

In [ ]: