List/ Dictionary/ Loop Labs

Append to a List

This lab allows you to append to a list using the input() function. We use a while True loop to allow a user to keep adding items to a list.

- We use .append() to add the value from the input() function to the list

lab-append.py

```
my_list =[]

while True:
    new = input('Add to List: ')
    my_list.append(new)
    print(my_list)
```

Minimum Age App

This lab allows a user to see which students are above a certain age. We store the records for students in dictionaries that are nested within a loop. We then ask the user for a minimum age and loop through the records and print the name of any students that are that age or above.

- We have dictionaries nested in a list
- We turn the string value that input() receives into an int
- We loop to test for the age or each student and if the condition is met the name of the student is printed

lab-search.py

```
students = [{'name':'bob', 'age':19},
            {'name':'sue', 'age':21},
            {'name':'tim', 'age':10},
            {'name':'bill', 'age':33},
            {'name':'bobby', 'age':66},
            {'name':'bonnie', 'age':9},
            {'name':'phil', 'age':15}]

while True:
    min_age = int(input('Minimum Age: '))
    print('These Students Can Attend: ')
    for record in students:
        if record['age'] >= min_age:
                print(record['name'])
```

Loan Repayment Calculator

This lab creates a script that allows you to determine how many years it will take to repay a loan. The user enters the initial amount owed, and then their monthly payment. We then run a loop until the amount owed stops being above or at zero.

- We use a dictionary to store the values for Owed and Payment
- User inputs the values and they are turned into floats
- We loop using basic math to determine how much has been paid off and print this to the screen.
- After loop breaks we print final count of Years it took to pay off loan

lab-repayment.py

```
money = {'owed':0.00, 'monthly_payment':0.00}
years = 0

money['owed'] = float(input('Starting Bill: '))
money['monthly_payment'] = float(input('Monthly Payment: '))

while money['owed'] >= 0:
    print(f'Year {years} = {money["owed"]}')
    money['owed'] = money['owed'] - (money['monthly_payment'] * 12)
    years += 1

print(f'Bill will take {years} years to pay off')
```