Python Assignment Report

This assignment introduces the essentials of Python through a range of activities involving operators, strings, and lists. I was better able to understand how Python manages conditions and computations thanks to the arithmetic, comparison, and logical operations in the operators section. In addition to learning about string lengths, reversing strings, and altering string cases, the string tasks included playing with substring searches and string formatting. List components can also be added, removed, sorted, and sliced. Overall, I was able to better understand Python's core capabilities and improve my ability to write clear, simple code thanks to this project.

Approach

1.Operators

- **Question 1 Arithmetic Operators :-** I created a code for this topic that uses two user inputs to do a number of basic arithmetic operations, including addition, subtraction, multiplication, division, exponential, and floor division.

Code:-

```
a=int(input("enter number")) # to take input from user

b=int(input("enter number"))

print("addition:",a+b) # to print the given operation

print("substraction:",a-b)

print("multiplication:",a*b)

print("division:",round(a/b,2))
```

```
print("modules:",a%b)

print("exponentiation:",a**b)

print("floor division:1",a//b)
```

- **Question 2 Comparison Operators :-**The if else statement in this question compares the user-inputted numbers to determine if the first number is greater, less than, or equal to the second number.

Code:-

```
a=int(input("enter number:")) # to take input from user

b=int(input("enter number:"))

if a>b: #to check the given condition that a is grater than b

    print("a is greater than b") #if true then it will print a is greater than b

elif a==b:

    print("a is equal to b") # if it is equal then it will print a is equal to b

else:

     print("a is less than b") # if all the above condition id false then it will print a
      is less than b
```

- **Question 3 Logical Operators :-**The following logical operators—AND, OR, and NOT—are used to compare and report the three boolean inputs that the user enters in this question.

Code:-

```
a=(input("enter value:")).strip().lower()=="true" # to take the input from user

b=(input("enter value:")).strip().lower()=="true"  # strip is used to clear the
    white space

c=(input("enter value:")).strip().lower()=="true"

v1=a and b and c

v2=a or b or c

v3= not a

v4= not b

v5= not c

print(v1)

print(v2)

print(v3)

print(v4)

print(v5)
```

2.Strings

- **Question 4 String Manipulation :-** The user enters a string in this question, and the code does a number of things, including determining the string's length, its first and last letters, reversing it, and changing its case.

Code:-

```
a=input("enter string:") # to take input fron user

print(len(a)) # to print the length of the input

print(a[0]) # to print the first letter of the input

print(a[-1]) # to print last letter of the input

print(a[::-1]) # to print the input in reverse

print(a.lower()) # to print the input in lowercase

print(a.upper()) #to print the input in uppercase
```

- **Question 5 String formatting :-** The user enters a string in this question, and the code does a number of things, including determining the string's length, its first and last letters, reversing it, and changing its case.

Code:-

```
name=input("enter name:") #to take the input from user

age=input("enter age:")

print(f"hello{name},you are {age} year old") #to print the name and age
    between the output we use f string
```

- **Question 6 Substring Search :-** In this question the user inputs a sentence and the word which needs to be found in the sentence. Using Find search method and if else statement to find the word.

Code:-

```
a=input("enter a sentence:")  # to take the input from user

b=input("enter word:")

if b in a:     # to check that the word is their in sentence

    index=a.find(b)       # find function is use to find the word out of the given
    sentence

    print(f"word{b}is there in index{index}")      # if the word is found then it will
    print

else:

   print(f"the is given{b} word is not there")     #if word is not found then it will
```

3.List

- **Question 7 List Operation :**-This question uses a FOR loop to collect five digits from the user and a f string to increase the value of i while simultaneously receiving input from the user. The user input is appended to the list using append, and the sum function is used to print the list's total as well as the largest and smallest numbers in the list, max and min

Code:-

```
a=[]  # to create list
```

```
for i in range(5):  # to take the input five time
    b=int(input(f"Enter No.{i+1}:")) # after taking each value it will increment to +1
    a.append(b)    # to put the values in the empty list
c=sum(a)     #to add all the given values
d=max(a)    # to print the greatest value
e=min(a)   #to print the smallest value
print(a)
print(c)
print(d)
print(e)
```

- **Question 8 List Manipulation :-** Similar to question 7, this question asks for user input in the form of string values for fruit names, which are then appended to the list. putting a fruit on the list and taking it off.

Code:-

```
a=[]  # to create list
for i in range(5):   # to take the input five time
    b=input(f"enter fruit{i+1}:")  # after taking one fav fruit number of fav fruit it will increment to +1 to 5
    a.append(b)  # to put the fruits in the empty list
```

```
print(f"fav fruit are:{a}") # to print the selected fruits

c=input("enter one more fruit:") # to take one more fruit

a.append(c) # to addd in the list of fav fruit

print(f"fav fruit are:{a}")

d=a.pop(1) # to remove the fruit from the list in the index of 1

print(f"now the list of fav fruit are:{a}") # to print the final list of updated fruits
```

- **Question 9 Sorting A List :-** The same procedure as in question 7 is used to accept user input and publish the list's ascending and descending order using sort & sort(reverse=true).

Code:-

```
a=[]  # to create list

for i in range (5):   # to take the input five time

    b=int(input(f"enter number.{i+1}:"))  # after taking each value it will increment to +1

    a.append(b)    # to put the values in the empty list

a.sort() # to arrange the number in ascending order

print("the ascending order of the number is:",a)

a.sort(reverse=True)  # to print the given number in descending order

print("the descending order of the number is:",a)
```

- **Question 10 List Slicing :-**The list is divided into two halves for this question: the first section prints the first five values, and the second section prints the final five values.

Code:-

```
a=["1","2","3","4","5","6","7","8","9","10"]

print(a[0:5]) # to print the first 5 numbers

print(a[-5:]) # to print the last 5 numbers

print(a[2:8]) # to print the number between the index of 2 to 8
```

- **Question 11 Nested List (Bonus Question) :-**The user enters the names of three students in this question, appends them to the list, and then uses the nested list to enter the students' grades for the three subjects. The student's name and grades are then printed.

Code:-

```
a=[] #to create a list

for i in range(3): # to take input 3 times

    name=input("enter name of the student:") # to print students name

    b=[] # to create the another list in for the nested lopps

    for j in range(3): # to take input 3 times

        marks=int(input(f"enter mark{j+1}:")) # to print marks of the students

        b.append(marks) #to add the marks in the nested list

    a.append([name,b]) # to add the name and mark in list(a)

for i in a: # to take the loop list

    average=sum(i[1])/len(i[1]) # to calculate the average mark of the student
```

print(f"student:{i[0]},average score:{average}") #to print the name and the average mark off the student

Key Learning

1. Operators: I gained knowledge about how to use arithmetic, comparison, and logical operators to efficiently perform a range of computations and checks.

2. String Manipulation: I improved my ability to manipulate strings using built-in Python functions by researching different methods for managing and processing string data.

3. List Operations: I learnt how to create, modify, sort, and cut lists, among other list operations. Working with nested structures, which are used to hold more complex data, was another skill I picked up.