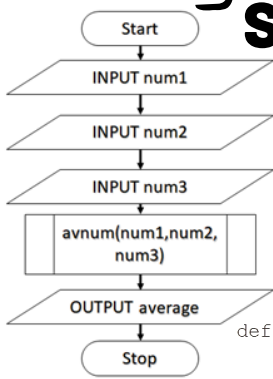


Programming Techniques - Part 2

Sub programs



```
def avnum(num1,num2,num3):
    average = (num1+num2+num3)/3
    return average
```

```
num1 = int(input("Enter num1: "))
num2 = int(input("Enter num2: "))
num3 = int(input("Enter num3: "))
average = avnum(num1,num2,num3)
print(average)
```

Arrays

Students			
James	Anne	Connor	Tim

An 1D array is a single row of values assigned to a single name

Create 1D array `students = ["James","Anne","Connor","Tim"]`

Print single item `print(students[0])`

Print whole array `print(students)`

Find length of array `print(len(students))`

Delete single item `del students[3]`

Add item to array `students.append("Fariah")`

James	45	28
Anne	93	71
Connor	58	33

2D array

A 2D array contains multiple rows of values assigned to a single name

Create a 2D array

`students = [["James",45,28],["Anne",93,71],["Connor",58,33]]`

Print single item `print(students[0][1])`

Add new row of data `students.append(["Fariah",70,36])`

Changing values `students[1][2] = 74`

String Manipulation

String Length

```
name = input("Enter your name: ")
print(len(name))
```

Position of character in string

```
letterPos = name.find("k")
print(letterPos)
```

Display part of string

```
message = "Chewie, we're home."
print(message[8:13])
```

Concatenation

```
firstName = input("Enter first name: ")
surname = input("Enter surname: ")
fullName = firstName + " " + surname
```

Convert character to ASCII

```
letter = input("Enter a letter: ")
print(ord(letter))
```

Convert ASCII to character

```
num = int(input("Enter a number: "))
print(chr(num))
```

FILE HANDLING

Open and write to a text file

```
country = "England"
population = 53000000
file = open("countries.txt","w")
newData = country+" "+str(population)+"\n"
file.write(newData)
file.close()
```

Append to a text file

```
country = input("Enter country: ")
population = int(input("Enter population: "))
file = open("countries.txt","a")
newData = country+" "+str(population)+"\n"
file.write(newData)
file.close()
```

Read from a text file

```
file = open("countries.txt","r")
dataToRead = file.read()
print(dataToRead)
file.close()
```

SQL Databases

WRITING TO AN SQL DATABASE

```
import sqlite3
with sqlite3.connect("company.db") as db:
    cursor=db.cursor()

    cursor.execute(""" CREATE TABLE IF NOT EXISTS employees(
    id integer PRIMARY KEY,
    name text NOT NULL,
    dept text NOT NULL,
    salary integer); """)

    newID=input("Enter ID number: ")
    newName = input("Enter name: ")
    newDept = input("Enter department: ")
    newSalary = int(input("Enter salary: "))
    cursor.execute("""INSERT INTO employees(id,name,dept,salary)
    VALUES (?, ?, ?, ?) """, (newID,newName,newDept,newSalary))
    db.commit()
```

SELECTING ALL DATA FROM SQL DATABASE

```
cursor.execute("SELECT * FROM employees")
print(cursor.fetchall())
```

SELECTING FIELDS FROM SQL DATABASE

```
cursor.execute("SELECT id,name,salary FROM employees")
print(cursor.fetchall())
```

SELECTING DATA THAT MEETS A CONDITION

```
cursor.execute("SELECT * FROM employees WHERE salary>20000")
print(cursor.fetchall())
```

SELECTING DATA USING A WILDCARD

```
cursor.execute("SELECT name FROM employees WHERE name LIKE 'M%'")
print(cursor.fetchall())
```

