1(a) Evolution of programming languages

In 1883, Charles Babbage developed a machine known as the analytical engine and then Ada Lovelace wrote the code. The analytical engine with this code was used to calculate Bernoulli’s number. In 1949, the assembly language was introduced and it was a low-level language. It mainly consisted of instructions only machines could understand. In 1952, Autocode was developed by Alick Glennie and it was first compiled computer programming language. In 1952, developers John Backus and IBM developed the first high level language known as FORTRAN. It was designed for numeric computation and scientific computing. In 1958, ALGOL was created and was the initial phase for languages of C, C++ and JAVA. It was also the first to use a nested function. In 1959, COBOL was invented followed by BASIC in 1964. In 1972, C was created it is considered the mother of most high-level programming languages. Python was invented in 1991 and was especially popular among data scientists and analysts. In 1995, JAVA, PHP and JavaScript where introduced followed by C# in 2000, GO in 2009, Kotlin in 2011 and Swift developed by Apple.Inc. in 2014.

Python provides a wide range of libraries and framework making programming easier and smoother allowing for higher efficiency and more rapid development among developers.

2(a) Decomposing a problem in python is way in which a complex issue is broken down into smaller parts that are more manageable and easier to understand.

(a)(ii) This skill allows a programmer to examine the problem in more detail to know exactly what is wrong.

(b)Identify relevant stakeholders that is all the farmers in the area involved in that project and the investors.

Establish project goals and objectives. This involves finding out what needs to be done first and getting what is needed urgently.

Look for requirements from the stakeholders. Effort be made to account for employees, customers and the rest of the app users.

Document the requirements. This is done to organize the needs for the creation of the mobile app.

Confirm the requirements to make sure that what is needed has been received.

Prioritize the requirements.

(b)(ii) Collection of information on what is needed should be done by making different inquiries from potential users.

Soliciting funds through crowd funding events. This should ease the process of collecting resources and make the users feel involved.

3(a) Mutable data types are those that can be changed after they are created lists and dictionaries while immutable data types on the other hand cannot be changed after they are created for example; tuples, integers and strings.

(b) This means that the type of variable in the Python code is determined only during runtime.

Code development and maintenance ensures a program continues to function as it was designed to.

Code development and maintenance allows for repair and upgrade of a program.

There are extra resources required leading an organization using the program to incur loses.

Feedback from code development and maintenance may cause interpersonal conflict.

PART B

1(b) Iteration means repeating a code over and over again until a particular condition is met. Iteration includes things like for loops and while loops.

A for loop is a control flow statement that is used to repeatedly execute a group of statements as long as the condition is satisfied.

A while loop sets aside a block of code until a condition is falsified.

a="withdrawal"

b="deposit"

print("withdrawal")

print("deposit")

account=50000

cont={}

#transaction type

user\_input=input("What is your transaction type: ")

for i in user\_input:

 #enter the amount to be withdrawn

 if user\_input==a:#if the input is equivalent to withdrawal find amount to withdraw

    count=int(input(f"Input amount to be withdrawn: "))

    if account>=count:

      print(f"Your account balance is {account-count}")

    elif account<=count:

      print("Error!That cannot be done")

    else:

      print("That is a wrong transaction")

    break

 #Entering amount to be deposited

 elif user\_input==b:

    no\_count=int(input(f"Input amount to be deposited: "))

    print(f"Your account balance is {account+no\_count}")

    break

 else:

   print("Find a different service")

   break

(c) Code modularity is the breaking down of a code into smaller, more manageable chunks in a sensible way to improve readability.

Writing re-useable code as functions. Group data and methods as classes. Split complex code into multiple scripts. Make small changes to the code to improve it.

1(a)

NO

BALANCE>=AMOUNT REQUESTED

YES

DISPLAY NEW CUSTOMER BALANCE

WITHDRAWAL

ASK USER TO INPUT AN AMOUNT

ASK USER TO INPUT AN AMOUNT

DEPOSIT

DEPOSIT OR WITHDRAWALL

ASK USER FOR THE TRANSACTION TYPE

DISPLAY ERROR MESSAGE