MILESTONE 1

Course Name : CCP6114-PROGRAMMING FUNDAMENTALS
Section : TC1L
Lecturer : Prof. Dr. Junaidi Bin Abdullah
Group : 4

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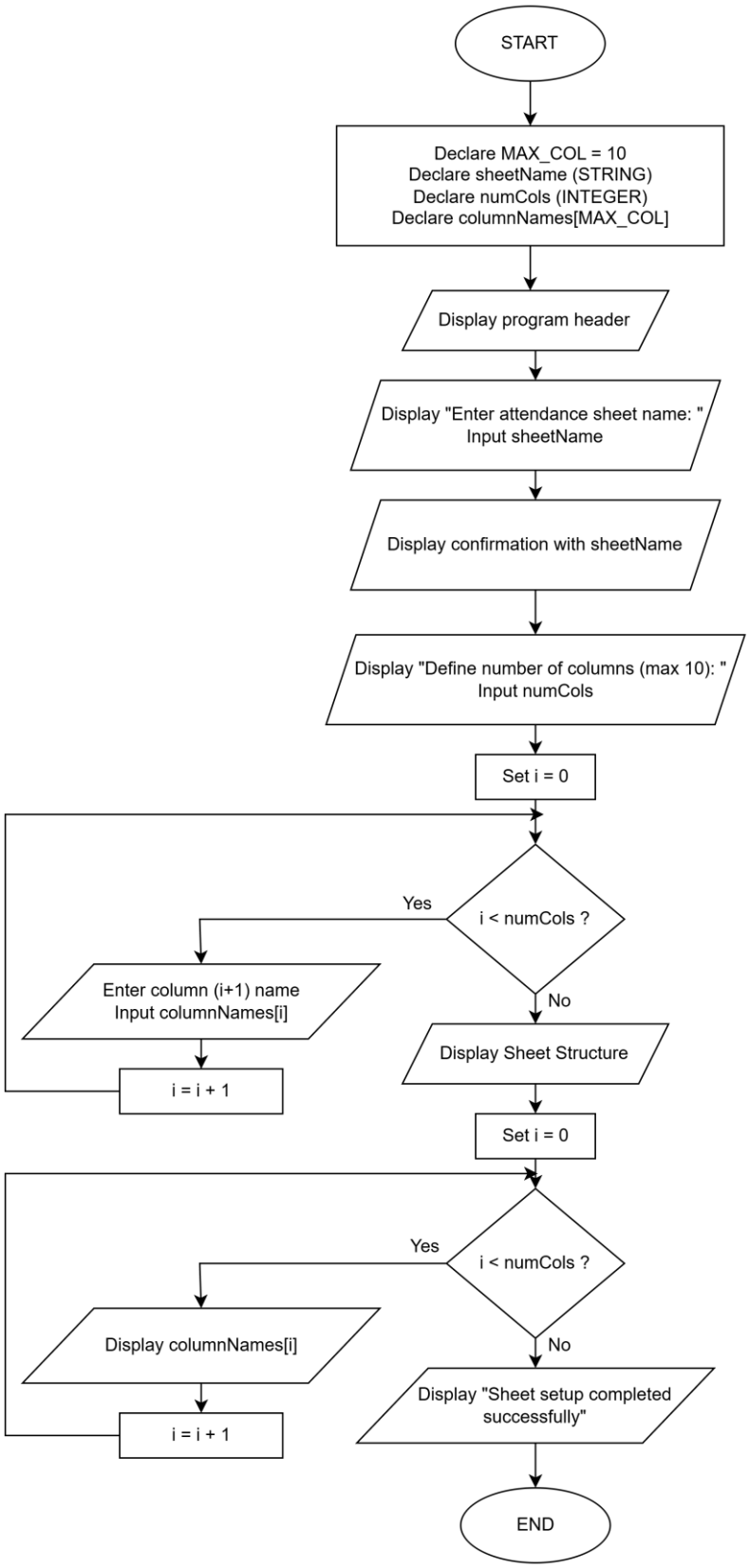
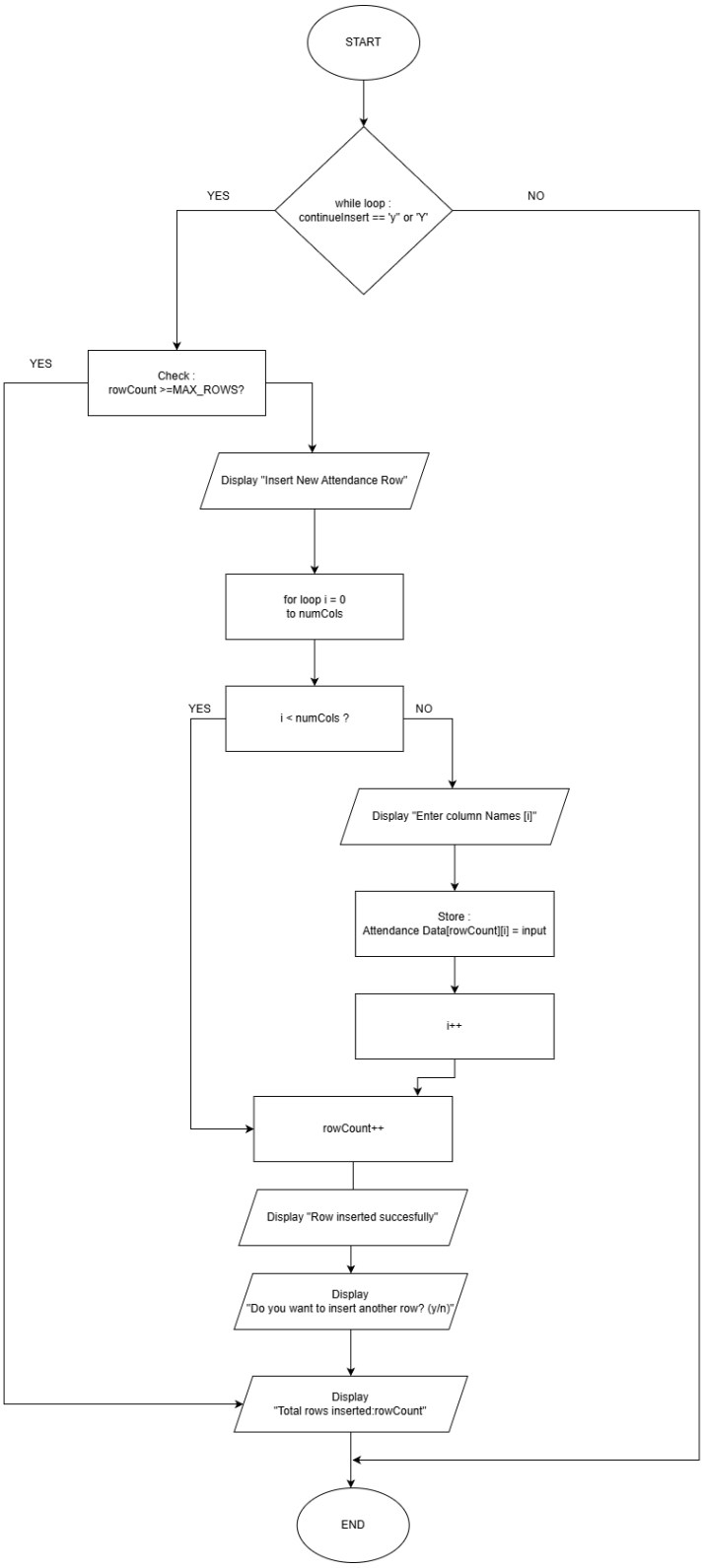
1. Flowcharts

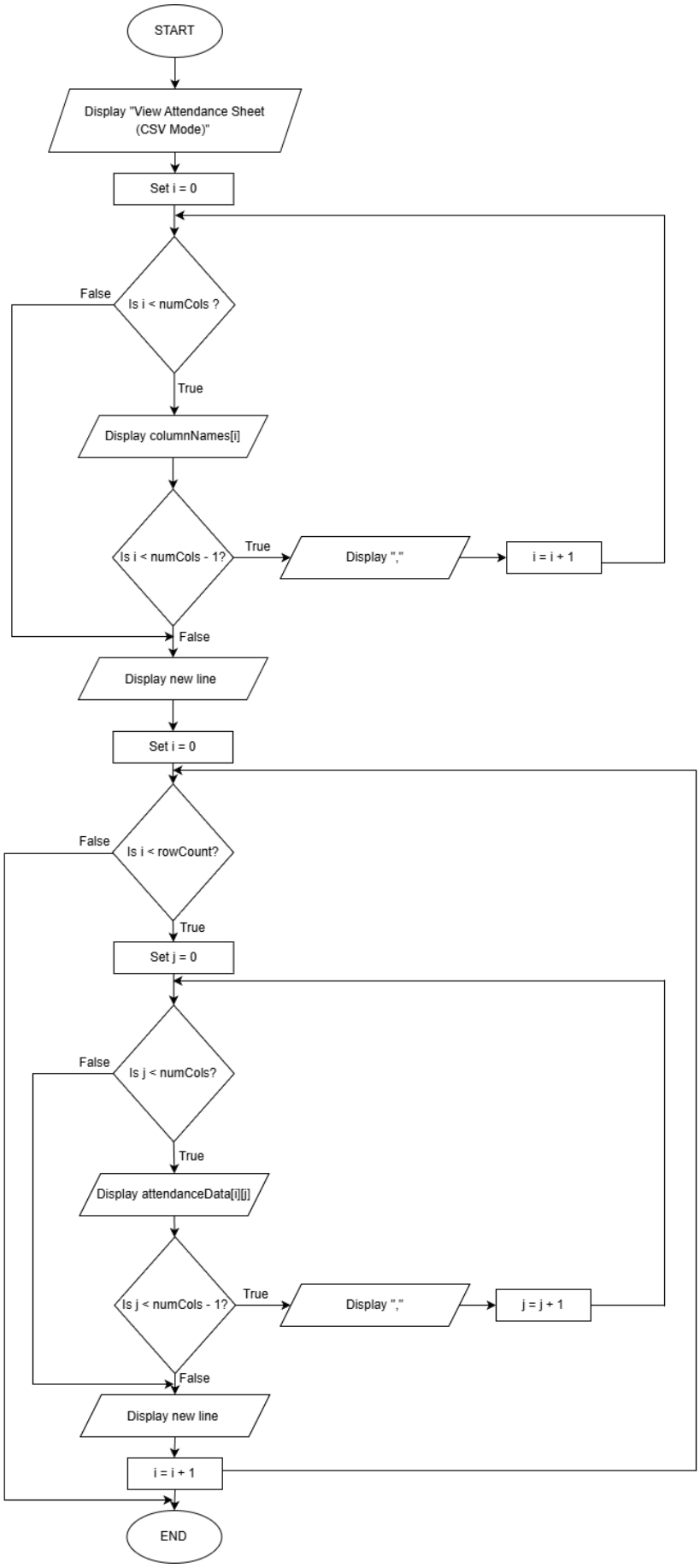
1.1. Attendance Sheet



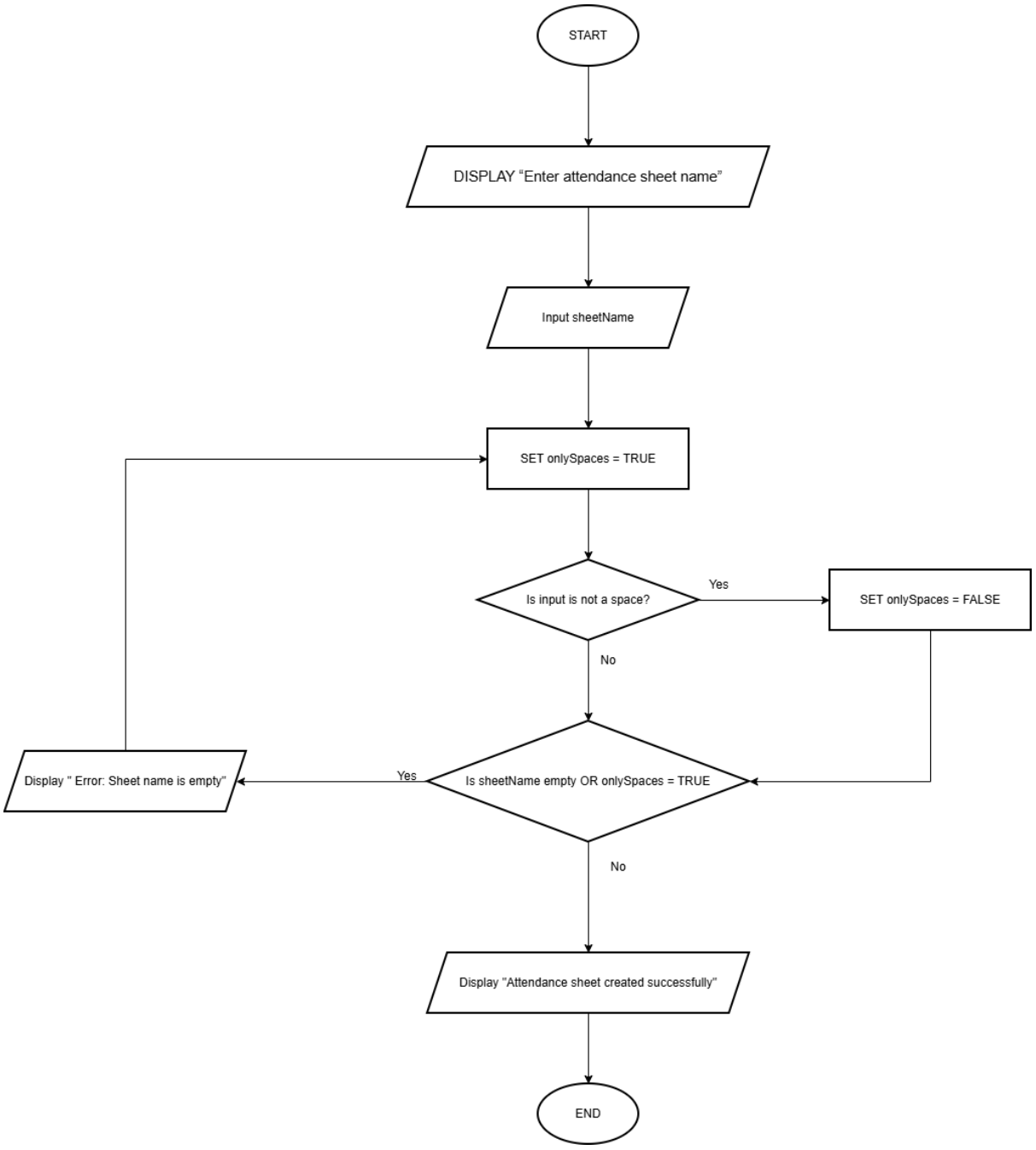
1.2. Attendance Row



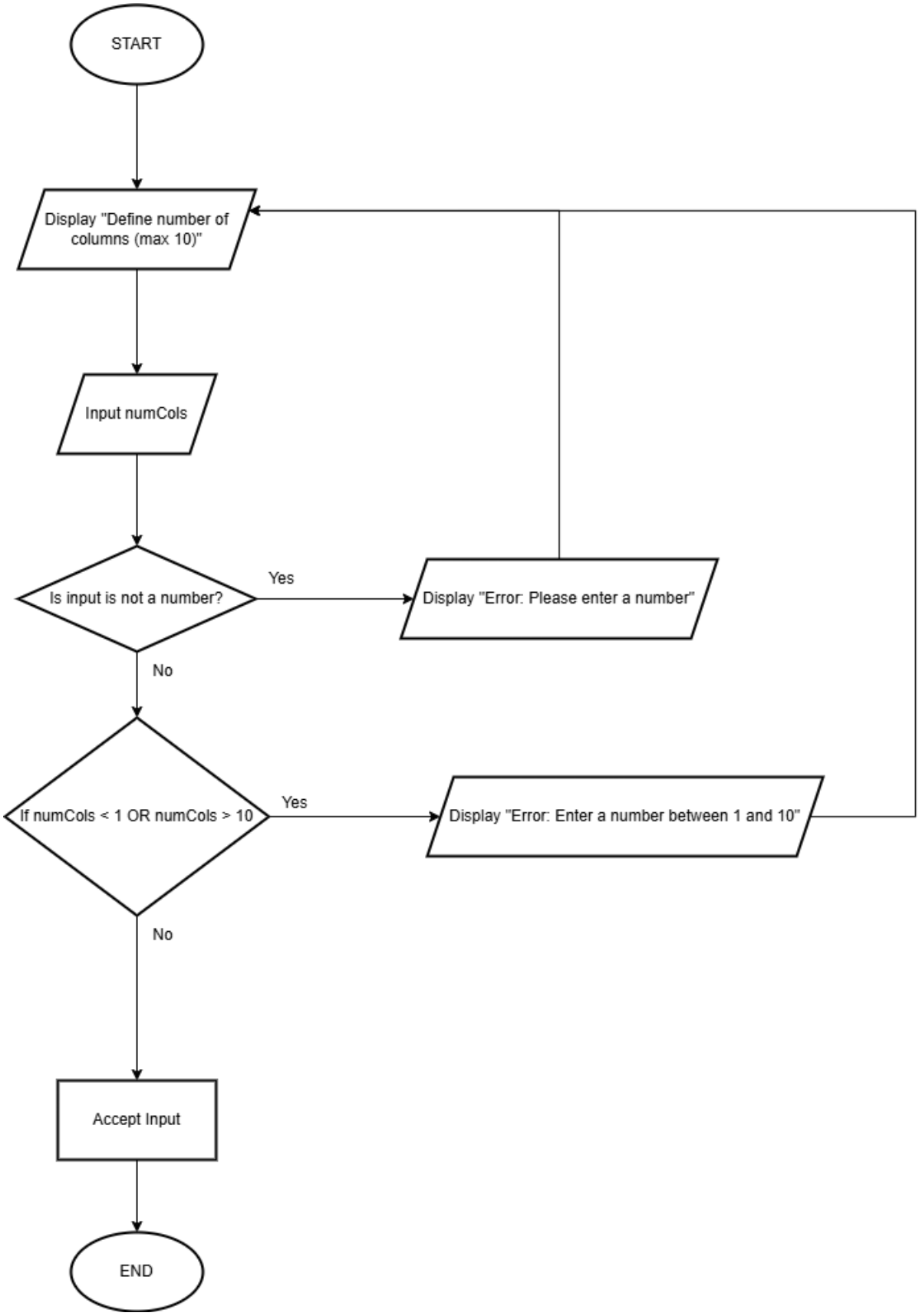
1.3. Attendance Sheet in CSV Mode



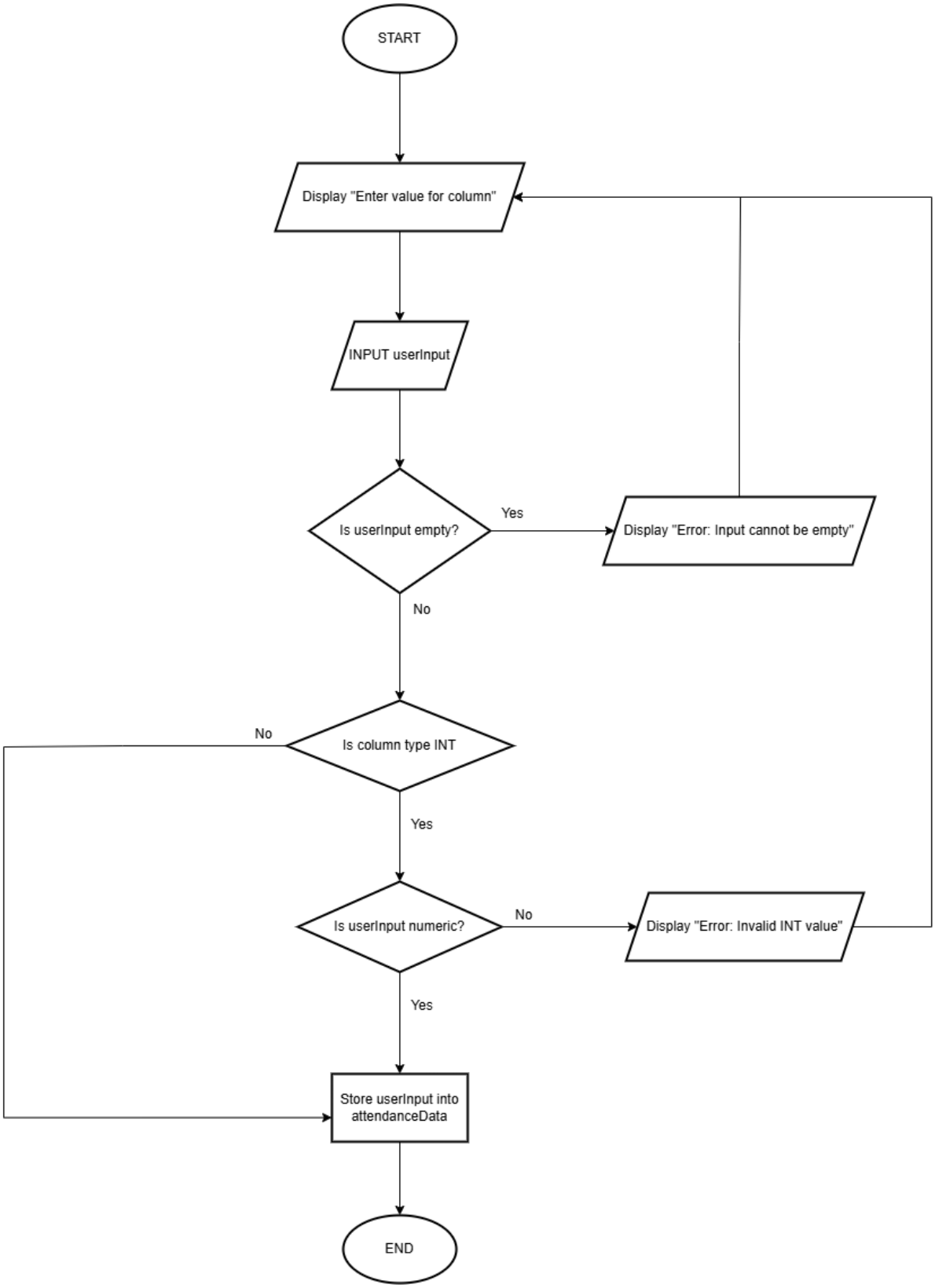
1.4 Attendance Sheet Name Validation



1.5 Number of Columns Validation (1-10)



1.6 Attendance Row Input Validation (INT Columns)



2. Pseudocode

2.1. Attendance Sheet

```
START

DECLARE constant MAX_COL = 10
DECLARE sheetName as STRING
DECLARE numCols as INTEGER
DECLARE columnNames as ARRAY of STRING (size MAX_COL)

DISPLAY program header

DISPLAY "Enter attendance sheet name"
INPUT sheetName

DISPLAY confirmation message with sheetName

DISPLAY "Define number of columns (max 10)"
INPUT numCols

FOR i ← 0 TO numCols − 1 DO
   DISPLAY "Enter column (i + 1) name"
   INPUT columnNames[i]
END FOR

DISPLAY "Sheet structure"
FOR i ← 0 TO numCols − 1 DO
   DISPLAY columnNames[i]
END FOR

DISPLAY "Sheet setup completed successfully"

END
```

2.2. Attendance Rows

```
START

   SET continueInsert = 'y'

   WHILE continueInsert == 'y' OR continueInsert == 'Y' DO

      IF rowCount >= MAX_ROWS THEN
         DISPLAY "Maximum number of rows (MAX_ROWS) reached."
         BREAK (exit loop)
      END IF

      DISPLAY "Insert New Attendance Row"

      FOR i = 0 TO numCols - 1 DO
         PROMPT "Enter [columnNames[i]]: "
         READ input from user
         STORE input INTO attendanceData[rowCount][i]
      END FOR

      INCREMENT rowCount by 1
      DISPLAY "Row inserted successfully."
      DISPLAY blank line

      PROMPT "Do you want to insert another row?" (y/n): "
      READ continueInsert from user
      CLEAR input buffer (ignore newline)
      DISPLAY blank line

   END WHILE

   DISPLAY "Total rows inserted: [rowCount]"
   DISPLAY blank line

END FUNCTION
```

2.3. Attendance Sheet in CSV Mode

```
START

DISPLAY "View Attendance Sheet (CSV Mode)"


FOR i = 0 TO numCols − 1 DO
   DISPLAY columnNames[i] without moving to next line
   IF i is not the last column THEN
      DISPLAY ", "
   END IF
END FOR

DISPLAY new line

FOR i = 0 TO rowCount − 1 DO
   FOR j = 0 TO numCols − 1 DO
      DISPLAY attendanceData[i][j] without moving to next line
      IF j is not the last column THEN
         DISPLAY ", "
      END IF
   END FOR
   DISPLAY new line
END FOR

END
```

2.4 Attendance Sheet Name Validation

```
START
REPEAT
        DISPLAY “Enter attendance sheet name”
        INPUT sheetname

        SET onlySpaces = TRUE

        FOR each input in sheetName DO
                IF input is not a space THEN
                        SET onlySpaces = FALSE
                        EXIT loop
                END IF
        END FOR
        IF sheetName is empty OR onlySpaces = TRUE THEN
                DISPLAY “Error: Sheet name is empty”
        END IF
UNTIL sheetName is not empty AND onlySpaces = FALSE

DISPLAY “Attendance sheet created successfully”

END
```

2.5 Number of Columns Validation (1-10)

START

REPEAT

DISPLAY “Define number of columns (max 10)”

INPUT numCols

IF input is not a number THEN

DISPLAY “Error: Please enter a number”

CLEAR input buffer

ELSE IF numCols < 1 OR numCols > 10 THEN

DISPLAY “Error: Enter a number between 1 and 10”

ELSE

ACCEPT input

EXIT loop

END IF

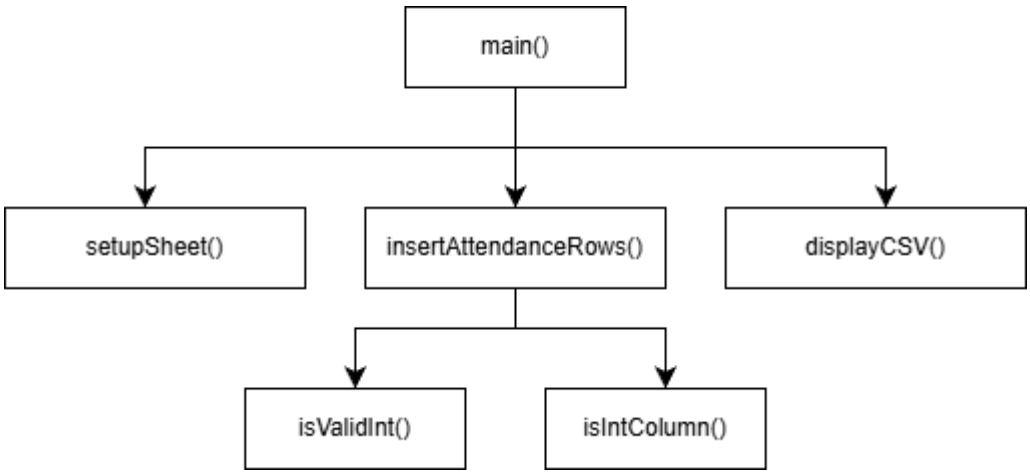
UNTIL valid input is entered

END

2.6 Attendance Row Input Validation (INT Columns)

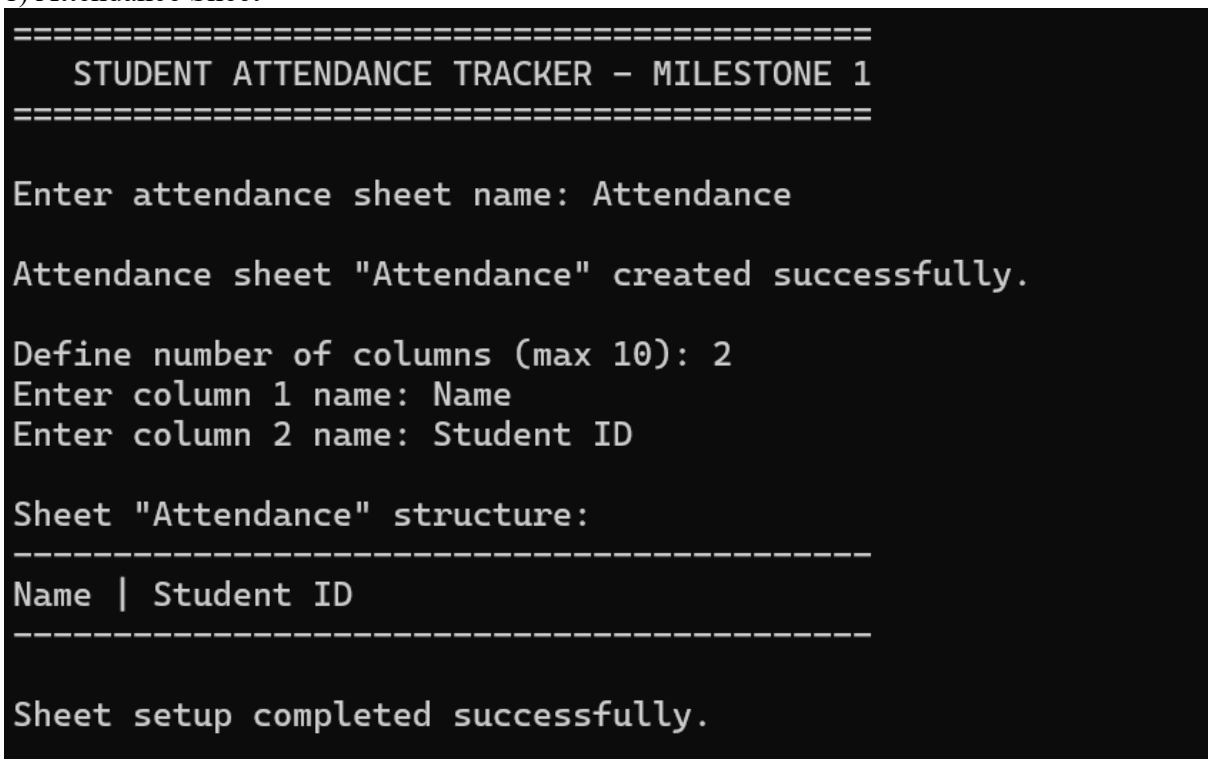
```
START

FOR each column in the attendance sheet DO
   REPEAT
      DISPLAY "Enter value for column"
      INPUT userInput

      IF userInput is empty THEN
         DISPLAY "Error: Input cannot be empty"
      ELSE IF column type is INT AND userInput is not numeric THEN
         DISPLAY "Error: Invalid INT value"
      ELSE
         STORE userInput
         EXIT loop
      END IF

   UNTIL valid input is entered
END FOR

END
```

3. Structured Diagram

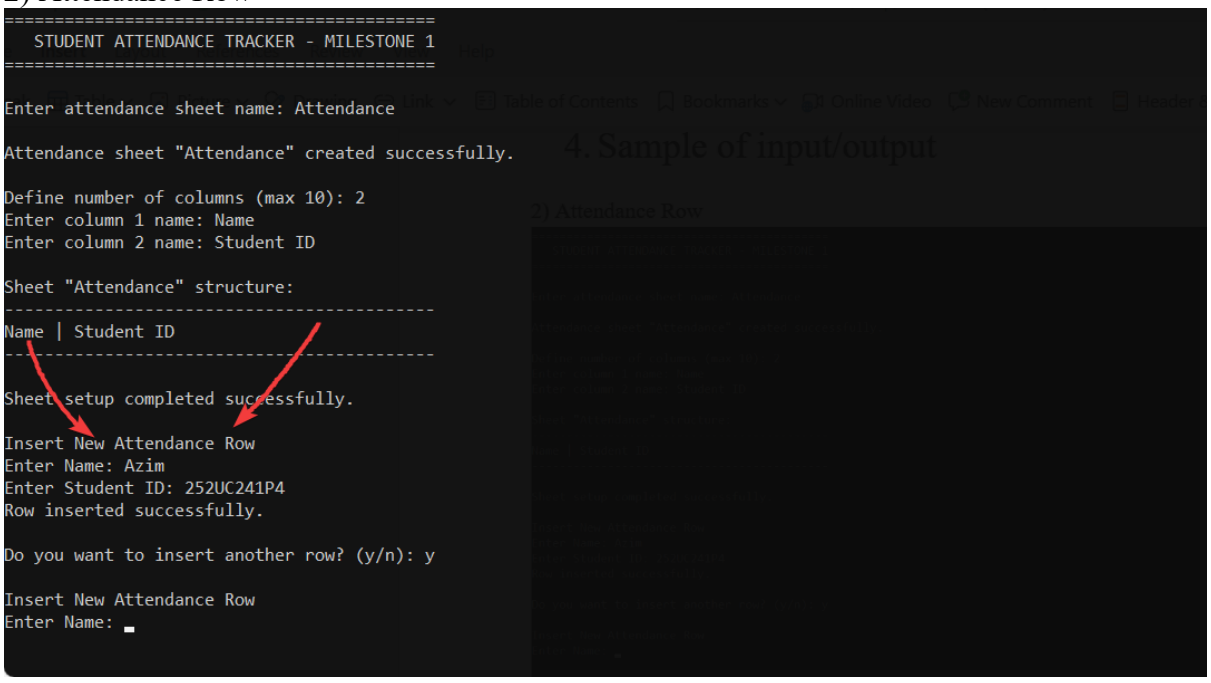


4. Sample of input/output

1) Attendance Sheet



2) Attendance Row



3) Attendance Sheet in CSV Mode

```
==========================================
   STUDENT ATTENDANCE TRACKER - MILESTONE 1
==========================================

Enter attendance sheet name: Week1_Attendance

Attendance sheet "Week1_Attendance" created successfully.

Define number of columns (max 10): 3
Enter column 1 name: StudentID
Enter column 2 name: Name
Enter column 3 name: Status

Sheet "Week1_Attendance" structure:
------------------------------------------
StudentID | Name | Status
------------------------------------------

Sheet setup completed successfully.

Insert New Attendance Row
Enter StudentID: 252UC241V4
Enter Name: Megat
Enter Status: Present
Row inserted successfully.

Do you want to insert another row? (y/n): y

Insert New Attendance Row
Enter StudentID: 252UC241P4
Enter Name: Azim
Enter Status: Absent
Row inserted successfully.

Do you want to insert another row? (y/n): n

Total rows inserted: 2

------------------------------------------------------------
              View Attendance Sheet (CSV Mode)
------------------------------------------------------------
StudentID           , Name                , Status
252UC241V4          , Megat               , Present
252UC241P4          , Azim                , Absent
```

4) Attendance Sheet Name Validation

```
==========================================
   STUDENT ATTENDANCE TRACKER - MILESTONE 1
==========================================

Enter attendance sheet name:
Error: Sheet name is empty. Please enter a name.
Enter attendance sheet name: Attendance

Attendance sheet "Attendance " created successfully.
```

5) Number of Columns Validation (1-10)

```
==========================================
   STUDENT ATTENDANCE TRACKER - MILESTONE 1
==========================================

Enter attendance sheet name: Attendance

Attendance sheet "Attendance" created successfully.

Define number of columns (max 10): abd
Error: Please enter a number.
Define number of columns (max 10): 12
Error: Number must be between 1 and 10.
Define number of columns (max 10): -24
Error: Number must be between 1 and 10.
Define number of columns (max 10): 2
Enter column 1 name: StudentID(INT)
Enter column 2 name: Name

Sheet "Attendance" structure:
------------------------------------------
StudentID(INT) | Name
------------------------------------------

Sheet setup completed successfully.

Insert New Attendance Row
Enter StudentID(INT):
```

6) Attendance Row Input Validation (INT Columns)

```
Sheet setup completed successfully.

Insert New Attendance Row
Enter StudentID(INT):
Error: Input cannot be empty. Please enter again.
Enter StudentID(INT): abc
Error: Invalid INT value. Please enter a number.
Enter StudentID(INT): 12345
Enter Name: Abu
Row inserted successfully.

Do you want to insert another row? (y/n): n

Total rows inserted: 1

------------------------------------------------------------
             View Attendance Sheet (CSV Mode)
------------------------------------------------------------
StudentID(INT)      , Name
12345               , Abu


Process returned 0 (0x0)   execution time : 300.182 s
Press any key to continue
```