Flowchart 1: Timetable Extractor in Python

Timetable Extractor in Python
Import modules

(from openpyxl import *)

`import sqlite3`

""" Task: 1. Create a simple database and table structure (0NF) for timetable schedule in SQLite. 2. Create a Python function (def) to : a. read all timetable in Microsoft Excel format b. extract the timetable contents c. store the contents into the created table (in item #1)"""

`import os`

◇ __name__ == "__main__" ?

No ↓

Yes → Read all MS Excel file (*.xls or *.xlsx) from a folder
Path for MS Excel files folder

`directory_path = "./"`

Check if directory exists or not

`checkDir = os.path.exists(directory_path)`

Folder exists

◇ checkDir == True ?

No → Folder doesn't exists

`print("\nDirectory not found!\nPlease make sure the directory is available.")`

Yes → Define MS Excel file extension

`fileExtension = ["*.xls","*.xlsx"]`

Loop the whole directory including sub-folders for files with an extension of .xls or.xlsx

`i = 0`

Flowchart 2: insert2db

(def insert2db(in_course, in_room, in_day, in_sem, in_timeStart, in_timeEnd))

Create / open Database

`db = sqlite3.connect("timetable.db")` → Get cursor object

`cursor = db.cursor()` → Create the Table

`cursor.execute(""" CREATE TABLE IF NOT EXISTS timetable (id INTEGER PRIMARY KEY, course TEXT, roomID TEXT, day TEXT, semester TEXT, timeStart TEXT, timeEnd` → Commit the transaction

`db.commit()`

try

except

◇ Exception as e ?

No → ⬡ Exception

Yes → `print("\nUnable to insert record.\nError type:"+ str(e)+"\n")`

`db.rollback()`

Execute the SQL syntax for INSERT

`cursor.execute("""INSERT INTO timetable (course, roomID, day, semester, timeStart, timeEnd) VALUES (?,?,?,?,?,?,?) """, in_course, in_room, in_day, in_sem, in_timeStart, in_timeEnd))`

`db.commit()`

`print("\nRecord successfully inserted!\n")`

end try → Close the DB connection

`db.close()`

⬡ End

Flowchart 3: readDailyData

(def readDailyData(read_startRow, read_endRow, read_day, read_Sem))

List to store data

`cellColData = []`

`cellRowData = []`

Read Excel's specific row and column grid/cell

⬡ for row_data in sheet(read_startRow: read_endRow]

End for

⬡ for cell_data in row_data

Get schedule from Excel's cell
Check if list is not empty (got data)

`cellColData.append(cell_data.coordinate)` → Store cell's value in list

`cellRowData.append(cell_data.value)`

End for

◇ cellRowData ?

No ↓

Yes → 09:00-10:00

`print(cellRowData[2], cellRowData[13])` → 10:00-12:00

`print(cellRowData[3], cellRowData[14])` → 11:00-12:00

`print(cellRowData[4], cellRowData[15])` → 12:00-13:00

`print(cellRowData[5], cellRowData[16])` → 13:00-14:00

`print(cellRowData[6], cellRowData[17])` → 14:00-15:00

`print(cellRowData[7], cellRowData[18])` → 15:00-16:00

`print(cellRowData[8], cellRowData[19])` → 16:00-17:00

`print(cellRowData[9], cellRowData[20])` → 17:00-18:00

`print(cellRowData[10], cellRowData[21])`

Insert data into record
We do not want empty/null values to be stored into DB

try

```
                    file in os.walk
                    (directory_path)

     End for
                    End for
    End                for name in file

                    "Code deleted (demo version
                          limitation)"

              Yes                    No

         filename_final =        print("\nNo MS Excel file
         os.path.join(folder,    found!\nPlease make sure
         name)                   all Excel file must be in
                                 the same folder.\n")

              i += 1

         print(str(i) +
         filename_final)

    Get active sheet   wb = load_workbook
                       (filename_final)

                       sheet_name =
                       wb.sheetnames

    Get the first sheet   active_sheet = wb.active

    Get lecturer name    sheet = wb[sheet_name[0]]

                         lecturer_name =
                         sheet["A6"].value

    Sunday schedule      readDailyData("A9","K10",
                         "sun", "20172018-2")

    Get Monday schedule  readDailyData ("A11",
                         "K12", "mon",
                         "20172018-2")

    Get Tuesday schedule  readDailyData ("A13",
                          "K14", "tue",
                          "20172018-2")

    Get Wednesday schedule
    readDailyData ("A15",
    "K16", "wed",              Get Thursday schedule
    "20172018-2")

    readDailyData ("A17", "K18",
    "thu", "20172018-2")
```

```
                    cellRowData[1] != None ?         08:00-09:0

                    Yes

         No     print(cellRowData[1],        Exception as e ?
                cellRowData[12])

         pass                                      No
                                                          Yes
                insert2db(cellRowData[1],
                cellRowData[12], read_day,   Exception
                read_Sem, "08:00",
                "09:00")
                                            print("Error
                                            cellRowData:" +str(e))

                    cellRowData[2] != None ?

                    Yes

         insert2db(cellRowData[2],       No
         cellRowData[13], read_day,
         read_Sem, "09:00",          pass
         "10:00")

                    cellRowData[3] != None ?

                    Yes
                                        No
         insert2db(cellRowData[3],
         cellRowData[14], read_day,   pass
         read_Sem, "10:00",
         "11:00")
```

```
                    cellRowData[4] != None ?
                       /            \
                    Yes             No
                     /               \
        insert2db(cellRowData[4],    pass
        cellRowData[15], read_day,
        read_Sem, "11:00",
        "12:00")
                     \               /
                    cellRowData[5] != None ?
                       /            \
                    Yes             No
                     /               \
        insert2db(cellRowData[5],    pass
        cellRowData[16], read_day,
        read_Sem, "12:00",         Rehat / break don't need
        "13:00")                   to be inserted into DB
                     \               /
                    cellRowData[7] != None ?
                       /            \
                    Yes             No
                     /               \
        insert2db(cellRowData[7],    pass
        cellRowData[18], read_day,
        read_Sem, "14:00",
        "15:00")
                     \               /
                    cellRowData[8] != None ?
```

```
                    Yes            No
              insert2db(cellRowData[8],
              cellRowData[19], read_day,        pass
              read_Sem, "15:00",
              "16:0'0")

              ┌──────────────────────────┐
              │ Code deleted (demo version │
              │       limitation)          │
              └──────────────────────────┘
                    Yes            No

              insert2db(cellRowData[9],
              cellRowData[20], read_day,        pass
              read_Sem, "16:00",
              "17:00")

                    cellRowData[10] != None ?

                    Yes            No

              insert2db(cellRowData[10],
              cellRowData[21], read_day,        pass
              read_Sem, "17:00",
              "18:00")

  end try                          end try


              End
```