**Database Description for Schedule App:**

The database for the "Schedule app" it will be designed to efficiently manage the information required for scheduling and maintaining course details for professors and courses. It consists of four main tables that will need to solve the complexity of the conflict between the parameters, the table below shows the details of tables in our dataset and each column and type:

Note this is a draft and needs more research.

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| --- | --- | --- | --- | --- |
|  | **Professor Table** |  |  |  |
|  | **Column name** | **Description** | **Variable Type** | **Info** |
|  | **ProfessorID** | A unique identifier for each professor. | *INT* | Primary Key |
|  | **Fname** | First name of the professor | *NVARCHAR(50)* |  |
|  | **Lname** | Last name of the professor | *NVARCHAR(50)* |  |
|  | **ProfessorType** | full-time or adjunct (adjunct part-time?) | *BOOLEAN* | Full-time higher priority |
|  | **DaysProfessorAva** | The days the professor is able to work during the week | *CHECKBOX LIST* | The input here is only what the professor wants maybe the system will modify it to solve the conflict |
|  | **TimesProfessorAva** | The times professor is able to work on the specific day of the week | *CHECKBOX LIST* | The input here is only what the professor wants maybe the system will modify it to solve the conflict |
|  | **Department** | The department to which the professor belongs (EE, CE, Robotic) | *LIST* |  |
|  | **Seniority** | The seniority level of the professor | *INT* | Years of experience in the teaching field |
|  | **CoursesTaught** | A list of courses taught by the professor | *CHECKBOX LIST* | I suggest type (checkbox List) Because courses are fixed for the entire academic year, however, Admin may add a new course once a year. |
|  | **Email** | Active email (UDMercy mail) for professor | *NVARCHAR(50)* |  |
|  | **OfficeNum Or OfficeLocation** | Office number or location of the professor | *NVARCHAR(50)* |  |
|  | **Phone** | Active | *INT* |  |

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|  | **Course Table** |  |  |  |
|  | **Column name** | **Description** | **Variable type** | **Info** |
|  | **CourseID** | A unique identifier for each course. | *INT* | Primary Key |
|  | **Department (Major)** | List of three majors | *NVARCHAR(50)* | EE, CE, Robotic |
|  | **CourseN&N** | Course name and number from UDM | *NVARCHAR(50)* | e.g. MTH1410 |
|  | **CourseType** | In-person, Online (Synchronous), or (Asynchronous) | *CHECKBOX LIST* | Admin is able to select two types for one course because some courses are online and in-person |
|  | **Elective** | Yes or no | *BOOLEAN* | If yes, lower priority |
|  | **CourseDays** | Number of days for a particular course in a week (e.g. Java two days in a week) | *CHECKBOX LIST* | Usually, two or once in a week |
|  | **CourseDuration** | For this stage of work, each course duration is one hour | *CHECKBOX LIST* | The list contains times (from-to), e.g. (8-9, 9-10, …., 19-20, 20-21), which means first-class start at 8 am and last class end at 8 pm. |
|  | **NeedLab** | Yes or No | *BOOLEAN* | For In-person courses only |
|  | **CourseLevel (Student level)** | List of courses levels which is students levels: (Freshman, Sophomore, Junior, Senior, Graduate) | *CHECKBOX LIST* | Some courses available to multiple levels, Admin able to select more than one level for specific course. |
|  | **CourseCredit** |  | *FLOAT* |  |

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| --- | --- | --- | --- | --- |
|  | **Time Slot Table** |  |  |  |
|  | **Column name** | **Description** | **Variable type** | **Info** |
|  | **TimeSlotID** | A unique identifier for each time slot | *INT* | Primary Key |
|  | **StartTime** | DateTime (YYYYMMDD hh:mm format) - Represents the start time of the time slot for the particular day. | *DATETIME* |  |
|  | **EndTime** | DateTime (YYYYMMDD hh:mm format) - Represents the end time of the time slot for the particular day. | *DATETIME* |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Availability Table** | This table is the input for the algorithm |  |  |
|  | **Column name** | **Description** | **Variable type** | **Info** |
|  | **AvaID** | A unique identifier for each availability record | *INT* | Primary Key |
|  | **ProfID** | Foreign key reference to the Professor Table for linking the availability to a specific professor | *INT* | Foreign key |
|  | **CourID** | Foreign key reference to the Course Table to associate availability with specific courses. | *INT* | Foreign key |
|  | **TSlotID** | Foreign Key Reference to Time Slot Table | *INT* |  |
|  | **IsAvailable** | indicating whether a professor is available during a specific slot. Maybe more than one professor available in specific slot or no professor in other slot. | *BOOLEAN (0,1)* | 0 = unavailability |

Notes:

* Maybe Time Slot T changed it to only a column! E.g.
  + slot 1 is Monday from 8 to 9. (Slot 1 is the first slot in the list of the week).
  + slot 60 is Friday from 19 to 20. (Slot 60 is the last slot in the list of the week).
  + In this case, the list contains 60 slots in total, which means each day 12 slots:

(8-9, 9-10, 10-11, 11-12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 19-20)

* The relationship between Professor T to Availability T is one-to-many.
* The relationship between Course T to Availability T is one-to-many.
* The relationship between Time Slot T to Availability T is one-to-many.
* The relationship between Professor T to Time Slot T is one-to-many.
* It is hard to select the correct relationships at this stage!
* The link below is the draft3 of schema:

<https://lucid.app/lucidchart/32518210-ffa6-4a55-ba8c-292e24fe3b89/edit?viewport_loc=-111%2C-16%2C2646%2C1287%2C0_0&invitationId=inv_5e7606e6-a95a-4d5b-a702-685865460789>

A diagram of a computer

Description automatically generated