
EMPLOYEE SCHEDULING

SODEXO CATERING, STATE UNIVERSITY OF NEW YORK AT BINGHAMTON

PROJECT REPORT

SUBMITTED BY

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Chapter 1

Introduction

Employee management and scheduling the available employees per week according to the events is a pretty tedious task in the Catering Department of Sodexo USA at Binghamton University. There are several types of events going on in the campus which are run by Sodexo Catering by employee students as part time workers and leads as full time workers. The variation of events consists from being the type of event i.e. service as China or disposable. China service using crockery, silverware utensils, glasses, etc. which needs more people to work at the same time and day of the week as compared to disposable service which uses light weight material requiring less attention by workers. The events also vary in the guest count and location, which adds complexity and requires people who can drive the vans to the event location. As each employee has its own availability and scheduling them becomes time consuming task.

The current solution to scheduling employees was going through a file which contains availability of each employee on a piece of paper. Usually 3 to 4 hours are required per week to assign work so that the events can be run smoothly. Using this software, the traditional paper approach is discarded by saving all the employee availabilities in a database in SQLite. SQLite is chosen as “Anyone is free to copy, modify, publish, use, compile, sell, or distribute the original SQLite code, either in source code form or as a compiled binary, for any purpose, commercial or non-commercial, and by any means.” SQLite is in Public Domain. The front end is designed in Java swings. There are several pages which gives various features like: Add, Edit, Delete Employees, Add, Edit, delete employee availability, Add, Edit, Delete Events and Add, Edit, Delete Employee’s scheduled for events. There are various details for employees, events are scheduling.

Chapter 2

Database

There are 4 table in the “SodexoCatering.sqlite” database named:

- AvailabilityTable
- EmployeeTable
- EventTable
- ScheduleDB

Structure for the tables:

EmployeeTable:

```
CREATE TABLE "EmployeeTable" ("EmployeeID" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL , "FName" VARCHAR NOT NULL , "LName" VARCHAR NOT NULL , "Phone" INTEGER, "EmailID" VARCHAR, "Address" TEXT, "State" VARCHAR DEFAULT NY, "ZIP" INTEGER DEFAULT 13905, "Drives" BOOL DEFAULT 0, "Student" BOOL DEFAULT 1)
```

ColumnID	Name	Type	Not Null	Default Value	Primary Key
0	EmployeeID	INTEGER	1	Null	1
1	FName	VARCHAR	1	Null	0
2	LName	VARCHAR	1	Null	0
3	Phone	INTEGER	0	Null	0
4	EmailID	VARCHAR	0	Null	0
5	Address	TEXT	0	Null	0
6	State	VARCHAR	0	NY	0
7	ZIP	INTEGER	0	13905	0
8	Drives	BOOL	0	0	0
9	Student	BOOL	0	1	0

EmployeeID – Primary key for referencing Employees uniquely.

FName – First name of this employee.

LName – Last name of this employee.

Phone – Phone number of this employee restricted to 10 digits.

EmailID – Email address of this employee.

Address – Mailing address of this employee.

State – State where this employee resides.

ZIP – ZIP code of the state where this employee resides.

Drives – True if this employee is added to the driving list of the company.

Student – True if this employee is a student.

AvailabilityTable:

```
CREATE TABLE "AvailabilityTable" ("EmployeeID" INTEGER, "Day" VARCHAR, "StartTime"
INTEGER, "EndTime" INTEGER)
```

ColumnID	Name	Type	Not Null	Default Value	Primary Key
0	EmployeeID	INTEGER	0	Null	0
1	Day	VARCHAR	0	Null	0
2	StartTime	INTEGER	0	Null	0
3	EndTime	INTEGER	0	Null	0

EmployeeID – Foreign key for referencing Employees uniquely.

Day – Consists of lower case string value denoting day of week. E.g.: sunday, monday, etc.

StartTime – 24 hr. time representation as start of shift.

EndTime- 24 hr. time representation as end of shift.

EventTable:

```
CREATE TABLE "EventTable" ("SrNo" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL ,
"EventID" INTEGER, "EventName" VARCHAR, "EventLocation" VARCHAR, "GuestCoune"
INTEGER, "Disposable" BOOL DEFAULT 1, "StartTime" INTEGER, "EndTime" INTEGER, "Date"
DATETIME, "Day" VARCHAR)
```

ColumnID	Name	Type	Not Null	Default Value	Primary Key
0	SrNo	INTEGER	1	Null	1
1	EventID	INTEGER	0	Null	0
2	EventName	VARCHAR	0	Null	0
3	EventLocation	VARCHAR	0	Null	0

4	GuestCoune	INTEGER	0	Null	0
5	Disposable	BOOL	0	1	0
6	StartTime	INTEGER	0	Null	0
7	EndTime	INTEGER	0	Null	0
8	Date	DATETIME	0	Null	0
9	Day	VARCHAR	0	Null	0

SrNo – Unique identification for events.

EventID – Event number for the event. Usually 5 digit number related with the customer identification.

EventName – Name of this event, if any.

EventLocation – Venue of this event.

GuestCoune – Count of guest for this event.

Disposable – TRUE if service type is disposable. Default value is TRUE.

StartTime- Time in 24 hr. format when this event starts.

EndTime- Time in 24 hr. format when this event ends.

Date – DATETIME representation for this event's date.

Day – Derived from the date of this event. Saved as lower case string. E.G: monday.

ScheduleDB:

```
CREATE TABLE "ScheduleDB" ("EventID" INTEGER NOT NULL , "EmployeeID" INTEGER,
"StartTime" INTEGER, "EndTime" INTEGER, "Day" VARCHAR, "Date" DATETIME NOT NULL )
```

Column ID	Name	Type	Not Null	Default Value	Primary Key
0	EventID	INTEGER	1	Null	0
1	EmployeeID	INTEGER	0	Null	0
2	StartTime	INTEGER	0	Null	0
3	EndTime	INTEGER	0	Null	0
4	Day	VARCHAR	0	Null	0
5	Date	DATETIME	1	Null	0

EventID – Event identification number. Usually a 5 digit number associated with customer identification.

EmployeeID – unique integer value to reference employees.

StartTime – Starting time in 24hr. format for scheduling a shift.

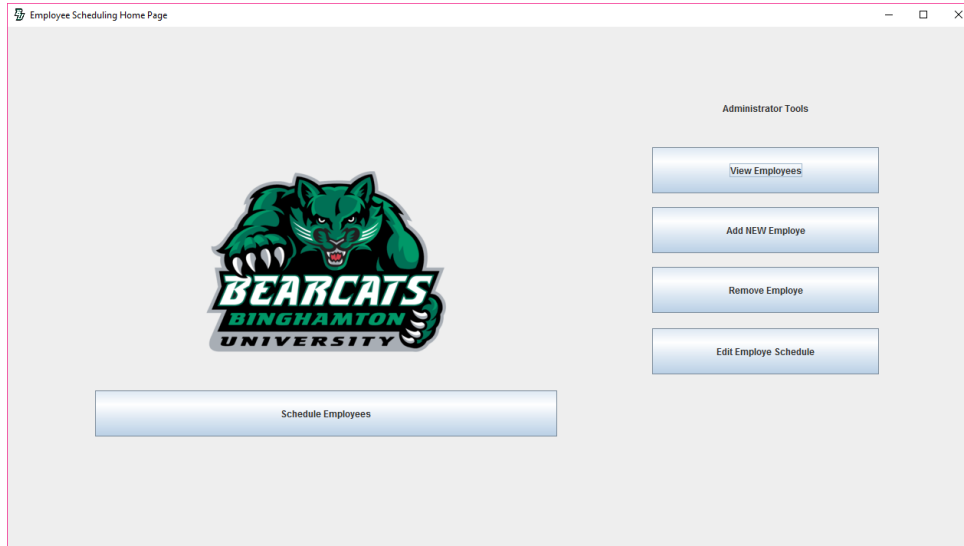
EndTime – Ending time in 24hr. format for scheduling a shift.

Day – lower case string representation for the day of the week.

Date – Date for which the employee has been scheduled.

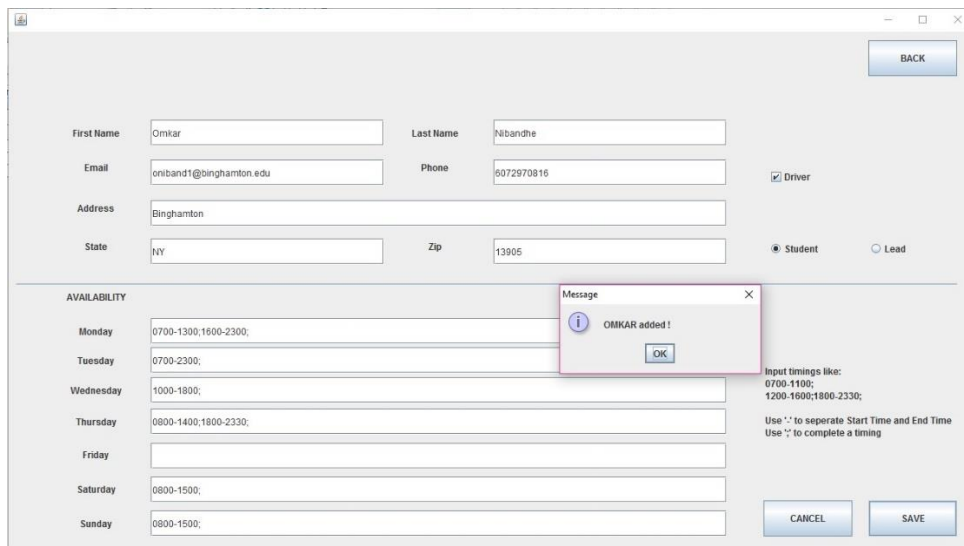
Chapter 3

The Application



Main Page

- The main screen showcases the BEARCATS logo and set of administrative tools.
- The images are taken from Binghamton University's website.



Adding new Employee to the database.

- Validating the text fields and saving the details to the database.
- Availability is entered in a specific format as "StartTime-EndTime;"
- On success, a message is shown with the First name added in the database

First Name: vishvas, Last Name: Patel, Email: vpatel19@binghamton.edu, Phone: 1234567890, Address: 327 main street, State: NY, Zip: 13905. Radio buttons: ☒ Student, ☐ Lead. Availability section with text boxes for Monday through Sunday. Message dialog: VISHVAS added! Buttons: CANCEL, SAVE.

Edit Employee

- Opens the employee details in the editable format.
- Any changes can be made to the existing employee.

EmployeeID	FName	LName	Phone	EmailID
1	Omkar	Nibandhe	1234567890	oniband1@binghamton.edu
2	Siddhant	Burande	1112223334	sburand1@binghamton.edu
4	vishvas	Patel	1234567890	vpatel19@binghamton.edu
5	Omkar	Nibandhe	0	oniband1@binghamton.edu

Select an Option dialog: Do you want to delete Omkar? Buttons: Yes, No, Cancel.

Delete Employee

- Shows a list of employees in the JTable. Employee can be selected separated by the category: Student, Leads, Drivers.
- Selected employee is confirmed before deleting.

2017-05-12

☒ Friday ☐ Saturday ☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday

Event Number: 13576

Start Time: 0800

End Time: 1000

Event Name: Interview Coffee Service

Event Location: Old Union Hall

Guest Count: 300

☒ Dispoable

☐ China

Message: Event Saved

Cancel SAVE

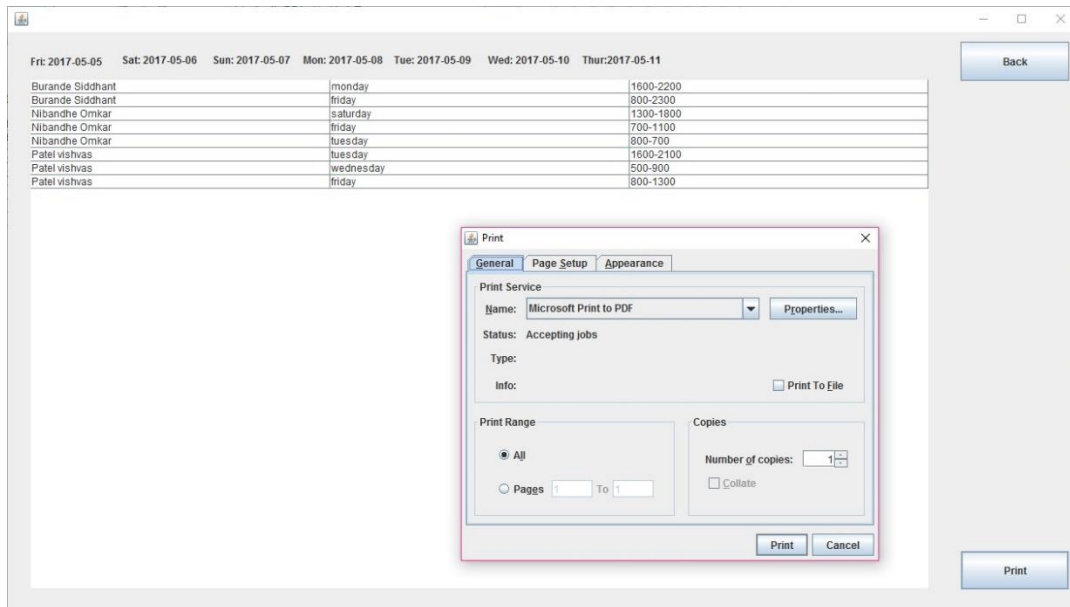
Add Event

- Date panel is used to pick up a date for the event.
- Validations are done in order to clean the data before entering it to database.

EmployeeID	FName	LName	Phone	EmailID
1	Omkar	Nibandhe	1234567890	oniband1@binghamton.edu
2	Siddhant	Burande	1112223334	sburand1@binghamton.edu
4	vishvas	Patel	1234567890	vpate119@binghamton.edu

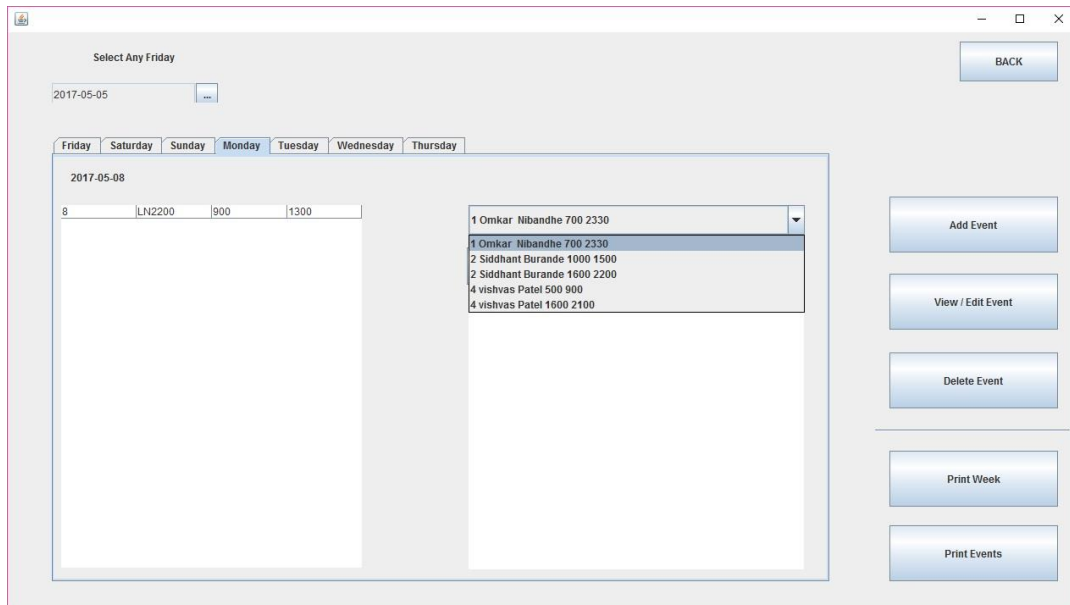
View All Events

- For a week under consideration, all the events are displayed in JTable.
This page also gives option to edit the events by clicking on the events for editing.



Printing Schedule by Employees.

- Days of week are displayed along with date at the top for simplicity.
- All employee schedules on which day for what timing is filled in JTable.
- JTable component is given a print commands.



Scheduling Available Employees by Events.

- All available employees are shown in the drop-down list to be scheduled.
- An employee can be selected and on clicking ADD button, user is asked about his start and end time suggesting his available start time and available end time.
- Similarly, by clicking on a scheduled employee and hitting REMOVE button, a scheduled employee will be unscheduled.
- Corresponding changes are immediately made to ScheduledDB database.

Chapter 4

Testing and Validations

The prototype, smaller modules and the entire system is tested repeatedly to find out different bugs or failures in system and ensured for correction as well as a correct solution.

The program handles various validations by restricting the user to press certain keys in corresponding textboxes eg: the JTextField for Firstname, LastName is disabled to take anything except alphabets, Phone, zip takes only numbers.