OOREDOO BILL MANAGEMENT SYSTEM

For Facilities Management Department in Carnegie Mellon University - Qatar

Team HAKK

Batoul Hasnah, Talha Anees
Yasir Khan, Jinsol Kim

Advisor

Selma Limam Mansar

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Introduction:

The main technologies we will be using to implement the program are

- Electron
- Node JS
- SMTP(Simple Mail Transfer Protocol) + NodeMailer
- PDFText

And other scripting languages and frameworks used to develop the application via Node JS are
- CSS
- HTML
- JavaScript
- Node.js

Electron is an open-source framework, which is running on a desktop. Electron makes it possible to write a desktop problem by using HTML, CSS and JavaScript of which purpose are for a web application development which in general.

NodeMailer is a Module for Node.js applications to allow easy email sending which is supported by Electron. In addition, a user can add attachments (such as a pdf version of bills) to emails, which is a vital function of this program. Code is written with zero dependencies and easily auditable, so further maintenance will be able to be available with the support of the IT department.

MySQL is an open-source relational database management system (RDBMS). MySQL runs on virtually all platforms, including Linux, UNIX, and Windows. For this application, CMU-IT has provided a MySQL database to store the data for the application.

Following are the versions of all the modules used in the development of the application with the documentations attached as hyperlinks for easy reference:
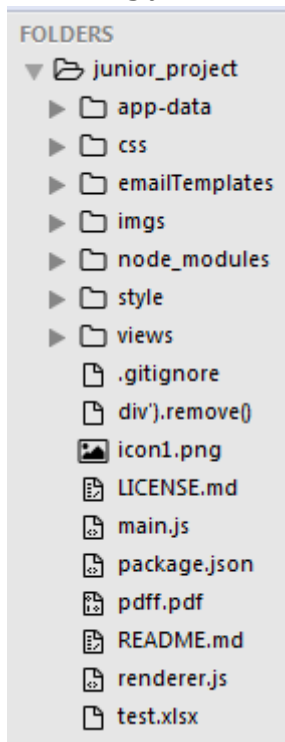
> NPM: 3.10.9 – For modules handling
> Node: 6.9.2 – Application structure and framework creation.
> Bcrypt-nodejs: 0.0.3 – For authentication.
> Bootstrap: 3.3.7 – For the application design.
> Bootstrap-table: 1.11.2 – For the application tables design.
> Electron: 1.6.2
> Electron-rebuild: 1.5.11
> JQuery: 3.2.1 – Document Object Manager.
> MySQL: 2.13.0 – For the SQL calls to the database.
> Nodemailer: 4.0.1 – For email automation.
> Nodemailer-express-handlebars: 2.0.0 – For email template handling.

Pdf-text: 0.4.0 - For PDF reading.
Electron-JSON-storage: 3.0.5 – For storing app information.

Structure of the code:

The code is divided into several folders and files for ease of access and reducing redundancy. It's based on the Model-View-Architecture model with the code divided accordingly as well. Following is the structure of the code.

FOLDERS
▼ 🗁 junior_project
  ▶ 🗀 app-data
  ▶ 🗀 css
  ▶ 🗀 emailTemplates
  ▶ 🗀 imgs
  ▶ 🗀 node_modules
  ▶ 🗀 style
  ▶ 🗀 views
    📄 .gitignore
    📄 div').remove()
    🖼 icon1.png
    📄 LICENSE.md
    📄 main.js
    📄 package.json
    📄 pdff.pdf
    📄 README.md
    📄 renderer.js
    📄 test.xlsx

As evident from the above photo, the code is divided into several modules. The styling, the views, the modules and the templates for the email are all separated. The controllers are however are added inside the views on the lower half of the html files as part of the scripts.
The main.js initializes the application whereas the renderer.js handles most of the routing and SQL functions.

Technical problematical scenarios and proposed solutions:

How do I change the scripts for the automated emails?
- The user can change the scripts by following the following steps:
    - Go to path_to_app_directory/emailTemplates
    - Open the desired template using Notepad ++, Sublime or any desired text editor
    - Change the format and wording of the file using the **HTML** format
    - Keep in mind to **not remove or alter the '{{}}' brackets** as they take the variable from the controller. You can, however, position them as desired.

How do I change the finance email address to which the list for the short term employees and vacant houses go?

- In order to change the finance email address, follow the following steps:
  - Open the file with the directory:
    path_to_app_directory/views/templates/home.html
  - Go to line 361 and change email to the email address you desire

```
357              )
358          }
359
360          }
361              sendMail('example@andrew.cmu.edu', "", "", "", "","","", listOfVacantAndST)
362
363          }
364
365    });
366  });
```

How do I change who to CC email address to which the list for the short term employees and vacant houses go?
- In order to change the CC email address, follow the following steps:
  - Open the file with the directory:
    path_to_app_directory/views/templates/home.html
  - Go to line 456 and change email to the email address you desire

```
449    function sendMail(email, empName, landLine, compName, pdfUrl, andrewId, unitNo, listOfVacantAndST){
450      // setup email data with unicode symbols
451
452      if (listOfVacantAndST == ""){
453        let mailOptions = {
454            from: '"Ooredoo Bill" <no-reply-fmbills@qatar.cmu.edu>', // sender address
455            to: email, // list of receivers
456            cc: "example@qatar.cmu.edu",
457            subject: 'Ooredoo Bill Cycle', // Subject line
458            template: 'yourBill',
459            attachments: [
460            {
461                path: pdfUrl
462            }
463            ],
464            context: {
465              empName: empName,
466              landLine: landLine,
467              compName: compName,
468              unitNo: unitNo
469            }
470        };
471
```

What do I do in case of the system showing a querying error from MySQL?
- Refer to the Error Messages Server Documentation by clicking here.

How do I reset the database?
- Contact Kranthi Kumar Sangishetty at helpcenter@qatar.cmu.edu

Any other questions and queries can be sent to helpcenter@qatar.cmu.edu.

Installation:

Run the installer provided by the team. Select a path and then open Bill Management System application file. Your application should start.