MOM & ME

Client Side Web Designing Final Report

DECEMBER 12, 2016

LOYOLA UNIVERSITY CHICAGO

Contents

1. Project Participants

SNo.	Name	Contribution
1	**Percy Gabriel Soliz Rodriguez**	• Git Repository and Bitbucket accounts created • Eclipse installation with Egit plugin for eclipse installed • MongoDB and MongoDB Compass Installation • Node JS and MongoDB Module Installation • Developed Modules: Login screen and user verification, Register Child, My weeks, Baby Photos and Nutritional Need
2	**Saharsh Patel**	• Designed Mockups to static interfaces with Balsamiq Mockups • Translated Mockups to static interfaces applying html 5, CSS and JavaScript • Redesigned some interfaces because of complexity • Corrected presentation for DEV WEEK • Developed Module: Symptoms
3	**Sarchina Kumari**	• Designed Mockups to static interfaces with Balsamiq Mockups • Translated Mockups to static interfaces applying html 5, CSS and JavaScript • Redesigned some interfaces because of complexity • Created presentation for DEV WEEK • Developed Module: Baby Names • Worked on final report

2. Abstract

a. Project Overview

System Mom and Me is a web based application designed to counsel future mothers during different development stages of their baby in order to keep a track of following things:

- Nutritional needs
- Physical development
- Photo albums
- Possible symptoms
- Item needs

The staff will manage the appointments for the first time only and will provide the patient with a signup ID and password to login to the online system for the rest of weeks. Patients will then be able to access all the necessary tips, weekly nutrition plan and other

relevant information online. The system aims to provide expectant mothers with an online portal for information they need related to their pregnancy without having to make multiple trips to the doctor's office. Help them plan for their baby shower, picking names and nutrition chart.

b. Project Outline

The functions of the application will be divided on weekly basis starting from week 1 to week 40. The mother will enter her expected date of delivery at the time of signing up and the system will calculate the start and end date of each week as per the due date. The Project aims to cover following features in the website.

i. User Sign-up/ Login

User must sign up for the application and authenticate before using the system. User must register by separate each of his children

ii. Nutrition plan:

For each week, mother will be provided a different nutrition plan, advised by nutritionists pertaining to each week of pregnancy. Mother can also keep track of cravings expected in those weeks and reactions to a specific food.

iii. Physical Development:

For each week, the mother would be able to see the physical development of her baby through images and would get information about the changes that the baby is going through in that week. The mother will also be given an option of mentioning any rare changes that she is experimenting in her body during that week to aid other mothers.

iv. Photo Album:

Mother will be able upload pictures and write comments of something that might be related to the baby during that week.

v. Symptoms:

Under this option, mothers could read about symptoms and their solutions which they would probably be experiencing during that week. They can also register cases based on their own experience and their resolution. The registered symptoms and their remedies would be added to the database for other users.

vi. Item Needs:

The option will cover a comprehensive list of items needed in each week. The option will also allow user to add items that she would want to recommend guests for baby shower.

vii. Suggested Names:

Along with pre-listed baby names on the site, the application will also allow user to recommend baby names with a description and a rating from 1 to 5.

c. Reasons Behind the Concept

Some of the reasons behind the concept are:

- Saving expectant mothers from walking all the way to hospital every week.
- Reducing redundant tasks for Doctors as well as other staff, in order to improve the patient capacity for the practice.
- Improving revenue
- Improving the opportunity to re-invest into the business as technology and equipment rapidly improve and are needed to continuously provide the safest service.

3. Project Narrative

The goal behind this project is to create a solution to offer a hospital which excel in tremendous healthcare serves and want to optimize and automate their system. With increasing number of patients, staff of such hospitals face a lot of challenges in dealing every patient in person and in managing huge number within such less time. Specifically, repeating same instructions or counselling to the patients with similar cases, costs too much time for doctors as well as the staff. Moreover, sometimes it becomes very problematic for patients to come all the way to hospital for expected counselling which might affect their health further.

Therefore, to reduce the redundancy and save time of patients and doctors for the better, we decided to automate a couple of their processes. Automating their maternal counselling process is one of them. So far staff at hospitals maintain the appointments of expecting mothers every week manually and doctors provide them suitable nutrition plans and tips. Online maternity counselling system will remove the time and commuting constraints for people and would save the staff from monitoring numerous sheets of appointments for 9 months per patient. A team of database administrators would be required to maintain, add and update the information of patients.

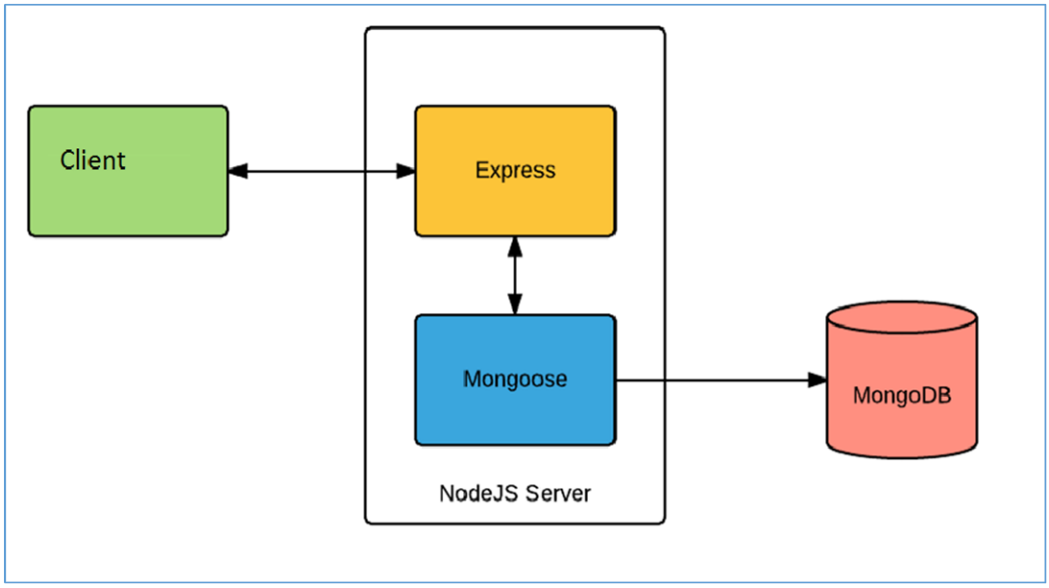
4. Design Considerations

a. Original Project ideas and concepts

This application is based on a front-end web component for the patient, the middle layer and back-end for the administrative staff. Both patients and the administrative staff would use LDAP authentication to access the application. The

patient will be able to input information directly into the application and the administrative staff will be able to pull information from the patient's inputs directly to give to the doctors.

b. Technical Specifications



- Server Side
  - MongoDB 3.2
  - Node.js
  - Express.js
  - Client-Session
  - Body-Parser
  - Mongoose
  - Jade Renderer
- Client Side
  - CSS 3
  - HTML 5
  - JavaScript
  - JQuery 3.1

c. User Characteristics:

The users of this system will be the staff at hospital and the patients. Patients who will be using it will those who do not want to come in weekly for counseling services that they can receive via the online interface or an app. The staff at hospital will be using the system to input patient information as well as be the site administrator.

d. Task Characteristics:

Patient Side: The patient will log into their account and can access their individual records. They will be able to view their previous pregnancy records as well as add new records. The patient will be able to see their individual records week by week. Each week will have a nutritional needs section, a physical developments section, a symptoms page, and a photo gallery page. Each account will can access a database of baby names, the ability to plan a baby shower and make a list of items needed.

Administrative Side: When a patient registers for an account, the administrative staff will issue them a username from the email that they submit and an automatic generic password will be generated (the patient will be able to change this upon their first login). The administrative team will be able to monitor each patient's records by week. They will be able to enter information from patient appointments under any given week and print reports about patient symptoms before an office visit.

e. System Characteristics:

This application runs on a client-server, and can be accessed by users when they attempt to visit the designated web page. While the user is accessing the site, the browser interprets and displays the pages. The application interacts via page scripts that store and retrieve data. The application is divided into a three-tiered structure: presentation, application and storage. The presentation tier is the web browser, the application tier uses web content technology which supports the database that is the storage tier.

f. Environment:

This application will be housed on a dedicated web serve physically secured in hospital's data center. There will be a fallback server housed at a remote location to ensure limited or no service interruption. Users can access the application from any web-browsing device.

- Possible datasets
  - **Kids:**
    - **Name:** Baby's Name
    - **Gender:** Male, Female, Unknow
    - **Due Date:** When the bay will be born
  - **Names:**
    - **Description:** Possible Name
    - **Rating:** 1-5
  - **Nutritional Needs:**

        - **Type:** Protein, Calcium, Vegetables, and Fat
        - **Week:** 1-40
        - **Description**: Nutritional needs for this week
    - **Symptoms**
        - **Title:** Name of the Symptom
        - **Content**: Description of the Symptom
        - **Image:** Path of the image related to the Symptom
    - **Users:**
        - **Username:** Login string of user
        - **Password:** Password of the account
    - **Weeks:**
        - **Kid:** Pertinent to that week
        - **Description:** Notes from the mother
        - **Order**: 1-40
        - **Initial Date:** Date when the week begins
        - **Final Date:** Date when the week ends
    - **Possible Names**
        - **Name:** Suggested name
        - **Meaning:** Meaning of that name

- Examples of other inspiration sources

Although there are a couple of websites on the nutrition of pregnancy, for example, www.fitpregnancy.com and www.parents.com but no website serves the purpose of providing all in one mom-to-be solution. Our website aims to create every kind of ease for the future mother, from following her weekly needs to managing all the things related to her and her baby in the duration of 9 months.

g. Primary Goal of the Homepage

The primary goal of Homepage is to help mother add her future kid's name and then access her 9 month chart related to that specific kid only, by clicking on the added name of her kid.

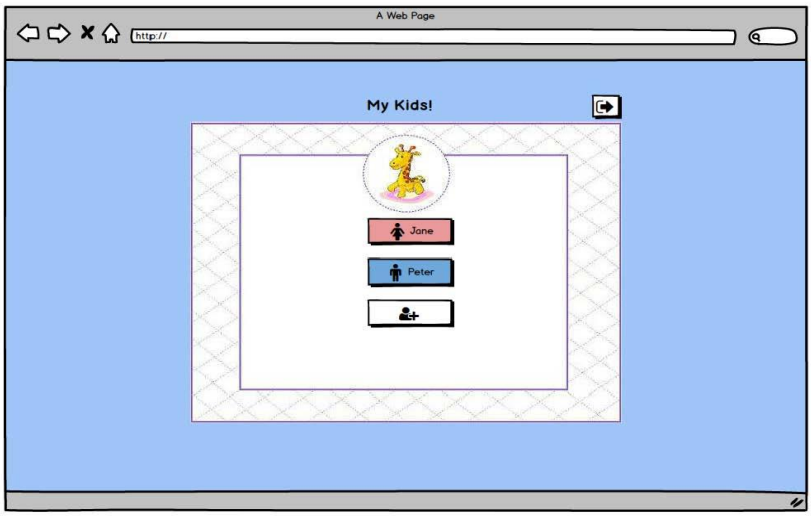
h. Consistency Considerations for each Page and Content

Since the website emphasizes on kids, we decided to use some bright colors and cute background images to give the site a vibrant and positive look. Rather than going for a traditional look, we chose to give the website a theme based on some toys and games that kids love to play and tried to reflect that consistency in each page of the website.

- Home Page

The homepage contained some fancy radio options to choose the expected gender of kid, his name and due date of delivery. The color scheme used on

homepage and the icons used were all a decision of reflecting the kids' world. The consistency of the theme could be reflected in all other pages as well.



- Nutrition Plan

The nutrition plan page followed the same theme. Not only this but all the weeks had same options in the same format and same order. We preferred the dialogue boxes for listing the nutrition options and the details as described before, because, we didn't want to give the website a feel of too much theory or description to follow.

- Symptoms Page

The symptoms page follows the same pattern, we rather focused on images on the symptoms page because, it helps you in understanding the symptoms better. As far about the consistency with other pages, the page follows the same theme and dialogue box pattern.

- Baby Names

The Baby names page is inspired by the homepage as it follows a pattern of list. There is an "add" icon at the top of the page which follows the pattern of the table. The Add, Delete and Save actions/buttons are designed to be consistent throughout.

5. From the Feedback of DEV Week

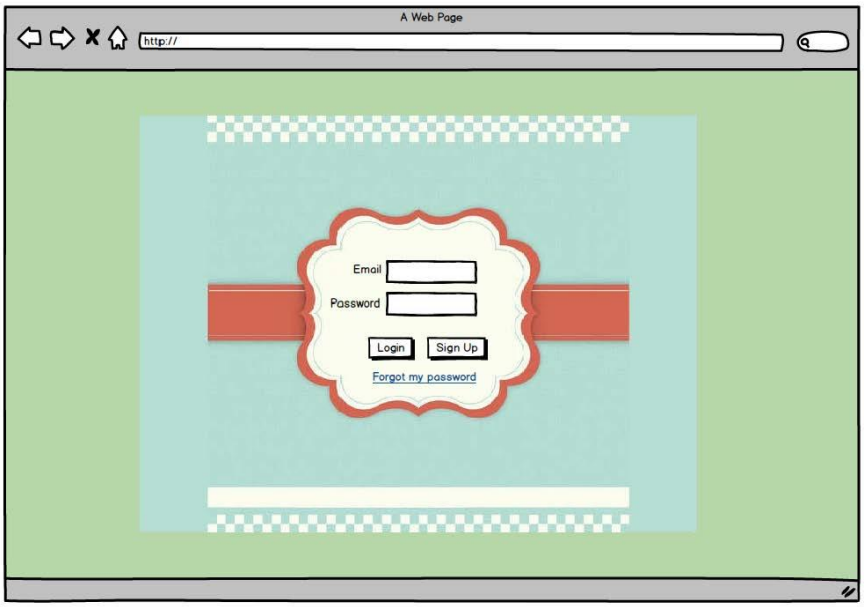
After the Dev week review, we tried to implement all kind of reviews that we got.

- We implemented the Flickr API for the images.
- We eliminated the Event management part to keep the website simple and focused on the priority parts.

- Since we really didn't show anything on the website, our prototypes were reviewed to be fine so we just tried to follow exact things in prototype in our final website.

6. Design and Specification

a. Mockups/Prototypes



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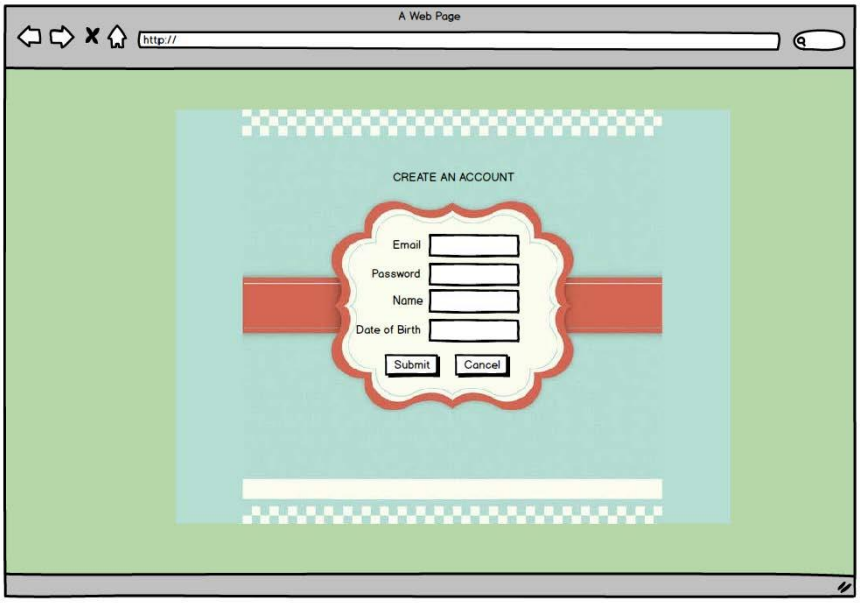

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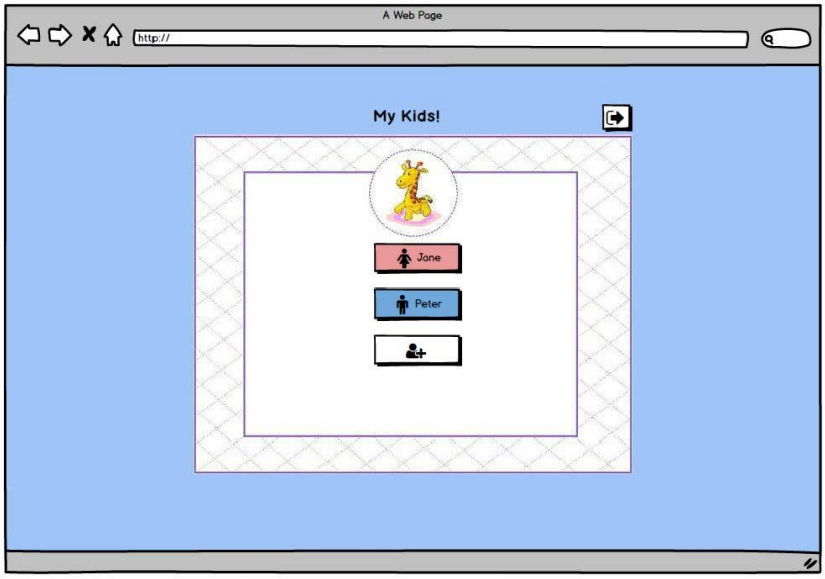
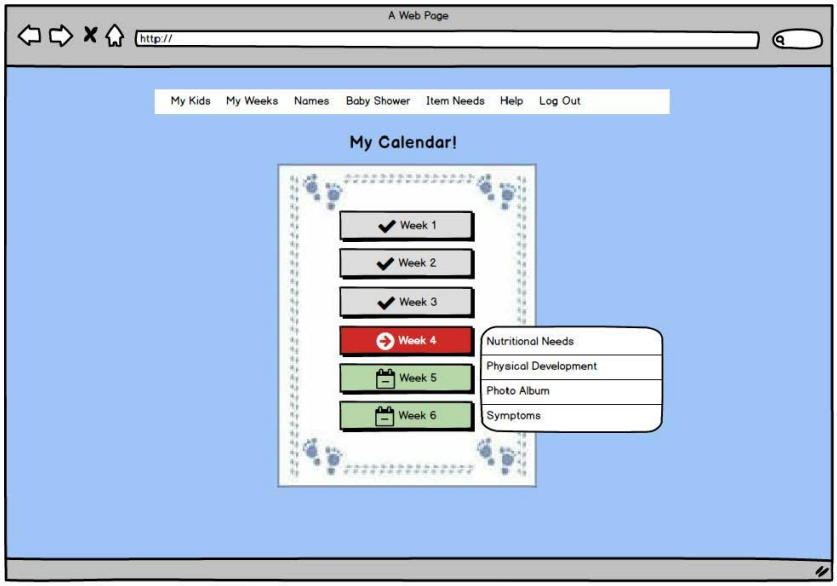

A Web Page
http://
My Kids!
Jane
Peter

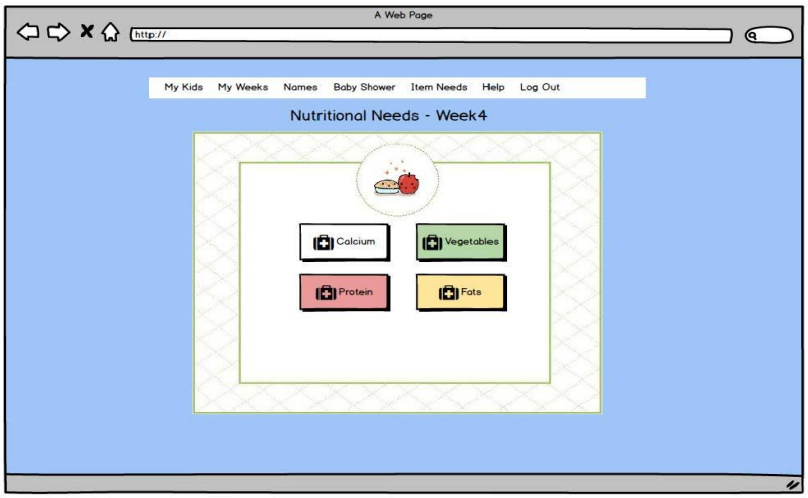
9.


A Web Page
http://
My New Baby!
Name
First Baby
It's a Boy
It's a Girl!
I don't now yet
Due Date
01/01/2016

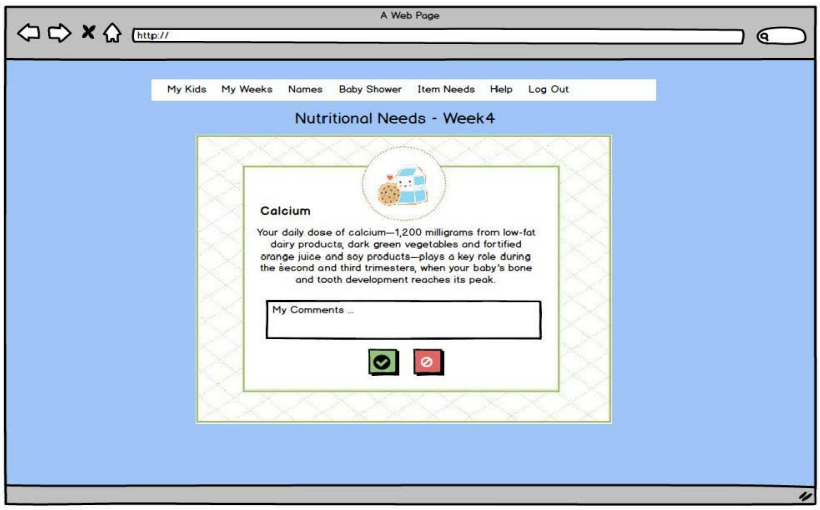
10.


A Web Page
http://
My Kids
My Weeks
Names
Baby Shower
Item Needs
Help
Log Out
My Calendar!
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Nutritional Needs
Physical Development
Photo Album
Symptoms

11.


A Web Page
http://
My Kids
My Weeks
Names
Baby Shower
Item Needs
Help
Log Out
Nutritional Needs - Week4
Calcium
Vegetables
Protein
Fats

12.



13.

a. From initial Concept to Final Application

The designing of the website from initial concept to the final application has almost remained same. We have been pretty clear about the theme and the color scheme since day one and gladly we have been able to successfully follow the theme of the mockups exact way in the final application.

6. Testing & Iterative Design

The objective of testing is to determine the usability of the system. We are testing from the patient perspective as well as the administrative staff's perspective. Documenting both the program and system tests and the results of these tests are essential to ensure the application functions optimally once launched.

When we designed the interfaces, we tried to follow the iterative Design Process guidelines by Completing an interface, presenting it to our team members that acted as test users, taking note of what they think could change and be improved, fix the problems by redefining the interface or fixing found problems and repeating the process till everything worked as intended. At the end were testing and criticizing each other module and trying to alert the person in charge of that module.

We tried to implement the Agile Software Development methods by iterating each interface and module creation or correction with all the other team members as stakeholders, trying to gain feedback from them and synthesized and incorporate the approved changes into the next iteration of the design. We were lucky because our former team member was pregnant and she was giving most of the feedback.

We tried to add some specific Unit test for specific cases like the Flicker APP component and the weeks creating for example, but we did not have the time to implement a specific tool into the project, so most of our unit test were made by the person who oversaw that module

and at the end by our Software Architect. Who also took care of performing integration test between modules in the flow of User, Kids, Weeks, Nutritional Needs, and Baby Names.

a. Testing Procedures:

The testing procedure for this application follows the standard testing process of confirming that all system requirements have been met, and is planned. The following are important scenarios to test for this application:

- The administrative staff's login email generation
- The patient's ability to login and change their password
- The patient's ability to create a new record for each pregnancy
- The patient's ability to see multiple weeks at a time
- The patient's ability to check their nutritional plan each week
- The patient's ability to enter symptoms into their personal page
- The patient's ability to access the database of baby names
- The patient's ability to use the baby shower planning functions on the site
- The patient's ability to add items to their items needed list
- The administrative staff's ability to monitor each patient's records weekly

7. Restrictions, Limitations & Constraints

a. Constraints Faced

Our main restriction was time, we tried to complete the application as we imagined it at the beginning but we could not complete all the features in time for the final presentation. The main problem we faced was when trying to store images into the MongoDB, we tried using a module called GridFS, but we could not implement the storing and pulling files in time. We also faced problems when dividing the projects into two different ones, one for the client and one ExpressJS Project for the server side. We were having security issues because we needed to define the domain from where the functions would be accessible, at the end we merged both projects into one so we didn't have to worry about this issue. Another issue we faced was using session variables in our server, we ended up using the body-parser modulo to work around this.

b. Things that we failed to Completed

We could not complete the following modules because of the limited time: Physical Development, Photo Album, Baby Shower Assistant, and Items needs. The additional module of Baby Shower Assistant was planned as follows:

"The application will also provide the mother with a set of tools for planning the baby shower and assist her in creating and sending electronic invitations to guests along with list of recommended items that they might consider bringing to the baby shower. Moreover, the application will allow the mother to register

possible names for the baby as soon as they come into her mind. By just opening the application, she will be able to keep a list of all the names she considers as a good option ranking them from 1 to 5 stars."

8. Conclusion

All in all, the application Mom and Mom would reflect a perfect blend of all the techniques and languages learnt during the class of client side web design. We have tried to take care of all the functionalities, prototypes, design principles, and storage principles. The website can serve the basic purpose, i.e., enabling the users to add their kids' name, access the nutrition plan and keep a track of their other relevant things.