R.E.A.C.H. Program Data Management Solution

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Why we are here

- IQP = Interactive Qualifying Project
- To solve problems involving science, technology and society
- To improve our group work and self-directed learning skills
- To learn better written communication and oral presentation practices
• Problem Statement & Project Goals
• Background
• Methodology
• Results
• Conclusion & Recommendations
Problem Statement

• Problems
  – Website outdated
    • Requires website development knowledge
    • The host expired
  – Data Management difficult
    • Paper based
    • Have to analyze by hand
    • Time consuming
    • More prone to errors
Project Goals

- Goals
  - Implement Attractive Website
    - Improve structure of website
    - Make website easy to edit
  - Make Data Management easier
    - Develop a new application

- Obstacles
  - Too many systems and tools to choose from
  - Tradeoffs between functionality and simplicity
  - Time consuming
  - May contain bugs
Overview

Website Design
- Effective webpage design
- Drupal

Data Management
- Java
- NetBeans
- SourceForge
- Subversion

Methodologies
- System Development Life Cycle (SDLC)
Website Design

- Design must be simple
  - Attracts customers
  - Simple page structure

- Three main pieces needed
  - Mission and Goals
  - Contact Information
  - Customer Services

Usability Rules the Web!!
Drupal: A Content Management System

Advantages
- No programming skills necessary
- Easy to implement a website and database quickly
- Expandable through modules
- Open Source

Disadvantages
- Performance slightly slower when manipulating content
Java Application

• Java
  – Programming Language
  – Designed for Desktop and Web applications
  – Supported by almost all operating systems and web browsers
Development Tools

- **Netbeans**
  - The developer editor
- **SourceForge**
  - Makes the project accessible from anywhere
- **Subversion**
  - Maintains versions of project (backup)
SDLC Methodologies

- Waterfall Development
- Rapid Application Development (RAD)
- Agile Development

Background
Scrum Structure

**ROLES**
- Product Owner
- Scrum Master
- Team

**CEREMONIES**
- Sprint Planning Meeting
- Daily Scrum Meeting
- Sprint Review Meeting

**ARTIFACTS**
- Product Backlog
- Sprint Backlog
- Burndown Chart

**Background**

**Scrum Structure**

- **ROLES**
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Overview

Methodology

SCRUM Plan
- Term Plans
- Sprint Plans
## Term Plans

**A Term**
- Researching literature
- Researching Tools
- Creating Project Website

**B Term**
- Design Database
- Create Java Applet
- Integrate Web Forms into Site

**C Term**
- Finalizing website for R.E.A.C.H.
- Finalize New Application
- Finalize IQP Report
- Test Performance
Product Backlog

- **Website Design**
  - Research and Buy Hosting Service
  - Add Drupal to GoDaddy Hosting Service
  - Add Pages
  - Develop Reach Program Intake Form
  - Fine Tune Website Aesthetics

- **Project Proposal**
  - Literature Review & Req. Analysis
  - Create Project Proposal
  - Project Presentation

- **Functional Application Development**
  - Design Platform
  - Add Database Interface Support
  - Check Permissions
  - Add Patient Module
  - Add Activity Module
  - Add Appointment Module
  - Add Report Module

- **Program Testing**
  - Individual Team Member Testing
  - Debug Program
  - Usability Testing

- **Staff Training**

- **Final Report**
  - Collect Results
  - Add Final Revisions to Application
  - First Draft of Final Report
  - Final Report Due
1. Development

2. Usability Test and Training

3. Release Final Products
• Webpage Design
  – New Structure
  – Simple Editing Functionality

• Application Development
  – User Manual
  – Developer Documentation
The REACH Program

Jacqueline Stockton

Jacqueline Stockton, MS, PT, CIMI, Physical Therapist

"The R.E.A.C.H. Program allows me to educate parents on the development of their child and give them tools to help them succeed."

- MS in Physical Therapy from Springfield College
- Over 10 years experience providing physical therapy to children from birth to age three
- Experience with adaptive equipment fittings and training
- Experience working in Early Intervention
- Certified Infant Massage Instructor (CIMI)
Welcome to the REACH Program's website

A developmental program for families of children birth to three years

No eligibility required

The R.E.A.C.H. team is staffed by trained and licensed clinicians

Resources: Providing developmental screenings with appropriate results and referrals.
Education: Offering developmental information to help parents maximize their child's full potential.
Advocacy: Working with families to be aware of and access available resources for their family.
Connections: Creating partnerships between families, physicians, and agencies to increase collaboration.
Hope: Reminding families that children who are supported in their development during the critical time of birth to three years of age are more likely to realize their full potential.

News

Coming soon.
### Patient Module Results: REACHPM Application

#### Patient Information

**Child’s Name:**
- **First Name:** jimmy
- **Last Name:** bob

**Pediatrician Information**
- **Pediatrician Name:** bob segar
- **Address:**
  - **Address 1:** 123 rocknroll dr
  - **Address 2:**
  - **City:** banjo way
  - **State:** Massachusetts
  - **Zip Code:** 74117

**Phone Number:** (111) 222-3333 ext.****

#### Parental Information

**First Caregiver Information**
- **First Name:** johnny
- **Last Name:** doe
- **Gender:** Male

**Second Caregiver Information**
- **First Name:** janet
- **Last Name:** doe
- **Gender:** Female

**Email Address:**
- **thedoess@doe.com**

**Home Address**
- **Address 1:** 123 milkyway st
- **Address 2:**
## Results: REACHPM Application

### Appointment Module

![Appointment Module](image)

**February 2011**

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>31</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

- **30**: Multiple appointments scheduled for the day.
- **31**: Single appointment scheduled for the day.
- **1**: Single appointment scheduled for the day.
- **2**: Single appointment scheduled for the day.
- **3**: Single appointment scheduled for the day.
- **4**: Single appointment scheduled for the day.
- **5**: Single appointment scheduled for the day.

**4:02 PM**

*Appointment status: Pending*

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### Activity Module

#### Results: REACHPM Application

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Start Time</th>
<th>End Time</th>
<th>Patients Attended</th>
<th>Staff Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-02-20</td>
<td>Baby Group</td>
<td>10:00 AM</td>
<td>11:00 AM</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

### Settings

- **Type:** Baby Group
- **Date:** 02/20/2011 10:00 AM
- **Duration:** 1 hour

### Quick Information

- **Patients Attended:**
- **Staff Attended:** Fix Me
Report Module

Report Period

Start Date: 02/23/2010 10:00 AM
End Date: 02/23/2011 10:00 AM

Generate Report

Report

Total Number Of Appointments: 1
Total Number Of Cancellations: 0
Total Number Of No Shows: 0
Total Number Of Families Serviced: 4

Appointments By Type

<table>
<thead>
<tr>
<th>Appointment Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>1</td>
</tr>
</tbody>
</table>

Patient Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>2</td>
</tr>
<tr>
<td>Caucasian</td>
<td>1</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
</tr>
</tbody>
</table>
i. Test of the Application

ii. User Manual

iii. Training Staff

iv. Interview
Interview Conclusion

• Likes
  – “Loved” report and appointment layout
  – User friendly
  – Little Typing

• Dislikes (minor)
  – Using only keys to manipulate dates (fixed)
  – Having to always click “Apply”
  – Layout of patient form categories (fixed)
  – Phone number initial selection confusing
Recommendations

• Final Results
  – Developed R.E.A.C.H. Patient Manager
  – Created R.E.A.C.H. Program Website

• Recommendations for Website
  – Keep a blog page of recent news
  – Constantly update the website

• Recommendations for Data Management Application:
  – Create a list of features you want added
  – Contact a qualified developer for updates
Acknowledgements

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  – Jacqui Stockton
  – Lisa Samios
  – Nicole Croak
  – Maria Yolanda
  – Lori Parent
Do You Have Any Questions?
References


Ein-Dor, P., & Segev, E. (1978). Organizational context and the success of management information systems. JSTOR.


References


