Pear Software
http://oraserv.cs.siena.edu/~perm_pear/

e-SATA
(The Electronic Spreadsheet Automated Teaching Assistant)

Requirements Specification
Welcome

Dr. Scott Hunter
Professor of Computer Science
Siena College
Department of Computer Science

Ms. Jami Cotler
Professor of Computer Science
Siena College
Department of Computer Science
Team Members

Matt Restivo.........................Team Leader
James Rocco.........................Project Manager
Colin Cubinski.......................Librarian
Justin Valentini.....................Webmaster
Dan Nakhla..........................Systems Administrator
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• Functional Requirements – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward... – Matt Restivo
Review of Problem

• Clients need easier way of grading Excel spreadsheets.
• Looking for automatic feedback of graded files.
• Ability to manage a student's grades and attendance.
Requirements Specification

• A highly detailed, client-oriented specification of criteria that an application must meet.
• Defines the required data structures.
• Details functional and non-functional requirements.
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• Functional Requirements – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward... – Matt Restivo
Use Cases

Four types of users:

1. Student
2. Lab Instructor
3. Lecture Instructor
4. Course Administrator
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• Functional Requirements – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward... – Matt Restivo
Data Flow Diagram

• A graphical representation of the “flow” of data through an information system.
• It illustrates the processes, data stores, external entities, and data flows in a business or other system and the relationships between these things.
Data Flow Diagram Key

- SOURCES/SINKS
- DATA STORE
- PROCESS
- ACTIONS
Level 3 – Web Interface
Level 3 – Grading System
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• **Functional Requirements** – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward... – Matt Restivo
Functional Requirements

• Student:
  – Make submissions of pre-lab and lab files.
  – Resubmit pre-lab after feedback is received.
  – Feedback screen to provide comments on mistakes.
  – View their lab grades.
  – Allow missed labs to be made up.
  – Allow user to retrieve a lost password.
Functional Requirements

• Lab Instructor:
  – View profile of any student in a lab session.
  – Edit the students’ grades.
  – Override graded mistakes.
  – Get feedback on most frequent mistakes.
  – View feedback from other lab sessions.
  – Keep attendance using the application.
  – Ability to export grades as a spreadsheet.
Functional Requirements

• Lecture Instructor:
  – View their students’ grades.
  – View statistics and feedback from all lab sessions.

• Course Administrator:
  – View all grades from all lab sections.
  – Upload answer keys for automated grading.
  – Ability to export grades as a spreadsheet.
Non Functional Requirements

- User Friendly Interface
- Easy to read drop downs for new students
- Fast Grading
- Efficiently programmed
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• Functional Requirements – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward… – Matt Restivo
Login Prototype Screen

![Login Screen Image]

- **Login:** [Input Field]
- **Password:** [Input Field]
- **Forgot Password?** [Button]
- **Cancel** [Button]
- **Submit** [Button]
Forget Password

![Password Retrieval Window](image)

E-Sata
Password Retrieval

Username

[Email Me My Password]
Student – View Labs

Assignment 1

<table>
<thead>
<tr>
<th>Files</th>
<th>Grade</th>
<th>Date Due</th>
<th>Date Submi</th>
<th>Average Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Lab 1.xls</td>
<td>100</td>
<td>10/25/06</td>
<td>10/25/06</td>
<td>100</td>
</tr>
<tr>
<td>Lab 2.xls</td>
<td>100</td>
<td>10/25/06</td>
<td>10/25/06</td>
<td>100</td>
</tr>
</tbody>
</table>

Export to Excel
Student – View Pre-Labs

Assignment 1

Files:  
- Pre Lab 1  Grade: 100  Date Due: 10/25/06  Date Submitted: 10/25/06  Average Grade: 100
- Lab 2  Grade: 100  Date Due: 10/25/06  Date Submitted: 10/25/06  Average Grade: 100

Re-Submit
Student – Submit Labs
Student – Feedback

E-Sata
User: Daniel, Nakhla

Get Feed Back For: Lab 1

Get Feedback
Possible Feedback Error

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>This Lab Should have 2 rows containing a list of numbers from 1 to 10.</td>
<td>Example 1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>
| 2 | 1 | Error 1: Cell A1 contains the wrong value.
It should contain the number 1. |
| 3 | 2 | Example 2 |
| 4 | 3 | 1 2 3 4 5 6 7 8 9 10 |
| 5 | Error 2: Cell A1 contains the wrong value.
It should contain the number 6. |
| 6 | 4 | 1 2 3 4 5 6 7 8 9 10 |
| 7 | 5 | |
| 8 | 6 | |
| 9 | 7 | |
| 10 | 8 | |

Error 1:
- Cell A1 contains the wrong value.
- It should contain the number 1.

Error 2:
- Cell A1 contains the wrong value.
- It should contain the number 6.
Lab Instructor – Grading

E-Sata
Lab Instructor

Assignments
- Pre Lab 1: 100
- Lab 2: 100
- Lab 3: 100

Average Grades
- 100
- 100

Attendance
- October, 2006
- November, 2006
- Today: 10/22/2006

Attendance:
- Present
- NOT Present

Export to Excel
Possible Feedback Error

This Lab should have 2 rows containing a list of numbers from 1 to 10.

Example 1:

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Error 1:

This cell contains the WRONG value.
It should contain the INTEGER 6.

Error 2:

Cell E3 to E14 contain the Wrong Values.
Lecture Instructor – Grading

![E-Sata Graphical User Interface](image)

- Course: 401
- Section: 5
- Student: Molly

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade</th>
<th>Average Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Lab 1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Lab 2</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Pre Lab 3</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

[Export to Excel]
Course Admin – Grading

![E-Sata Course Administrator interface](image)

**Course Admin – Grading**

- **Course:** 401
- **Section:** S
- **Student:** Molly

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade</th>
<th>Average Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Lab 1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Lab 2</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Pre Lab 3</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

[Export to Excel]
Course Admin - Answer Key

[Image of E-Sata Course Administrator interface]

- Course: 401
- Section: S
- Student: Molly

Lab Number
Assignment Name

Answer Key: AnswerKeys File 1.xls
AnswerKeys File 2.xls

Lab Files:
Browse

Pre Lab
Lab

Upload Button
Agenda

• Introduction – Matt Restivo
• Use Cases – James Rocco
• Data Flow Diagrams – James Rocco
• Functional Requirements – Colin Cubinski
• Prototype Screens – Dan Nakhla
• Going Forward… – Matt Restivo
Where we stand…

Waterfall Model

- Software Plan
- Requirements Specification
- Preliminary Design
- Detailed Design
- Acceptance Test

Green = Completed
Blue = In Progress
Going Forward...

• What’s next?
  – Preliminary Design:
    • Document: November 27, 2006
    • Presentation: November 29, 2006

• Any questions?
Going Forward...

• What’s next?
  – Preliminary Design:
    • Document: November 27, 2006
    • Presentation: November 29, 2006

• Any questions?
Going Forward...

• What’s next?
  – Preliminary Design:
    • Document: November 27, 2006
    • Presentation: November 29, 2006

• Any questions?
Going Forward...

• What’s next?
  – Preliminary Design:
    • Document: November 27, 2006
    • Presentation: November 29, 2006

• Any questions?
Going Forward...

• What’s next?
  – Preliminary Design:
    • Document: November 27, 2006
    • Presentation: November 29, 2006

• Any questions?