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

e-SATA
(The Electronic Spreadsheet Automated Teaching Assistant)

Detailed Design
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
Agenda

• Introduction – Matt Restivo
• Changes and Updates – Colin Cubinski
• Database Design – Justin Valentini
• Unit Testing – James Rocco
• 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 students grades and attendance.
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Detailed Design

• The Detailed Design is the last document before the Acceptance Test.
• It contains revised Data Flow Diagrams, Prototypes, and Unit Tests.
• Prototypes are no longer just screen shots but rather web pages.
Functional Requirements

• Changes:
  – The Student has the ability to upload multiple files for each lab.
  – Each file of a lab has a specific grade weight.
  – Students can now download one zip file of all lab files or each lab file separately.
  – Ability to switch between user views.
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Database Design

- Attendance
  - AutoNum
  - StudentID
  - Date
  - Attendance

- Users
  - UserID
  - UserName
  - Password
  - FirstName
  - LastName
  - Type

- Labs
  - LabID
  - FileName
  - StudentID
  - EditedBy
  - Type
  - SystemGrade
  - PartialCredit
  - GradeWeight
  - Feedback

- Instructs
  - SectionID
  - ProfessorID

- Sections
  - SectionID
  - CourseID
  - Type

- Files
  - FileID
  - FileName
  - AdminID
  - LabNumber
  - CourseID
  - Type

- Courses
  - CourseID
  - CourseName
  - Semester
  - Year
Agenda

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## Unit Test Table of Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Login Interface</td>
</tr>
<tr>
<td>10</td>
<td>New User Screen</td>
</tr>
<tr>
<td>11</td>
<td>Register &amp; PW Recovery</td>
</tr>
<tr>
<td>12</td>
<td>ST - Labs</td>
</tr>
<tr>
<td>13</td>
<td>ST - Pre-Labs</td>
</tr>
<tr>
<td>14</td>
<td>ST - Submit New Lab or Pre-Lab</td>
</tr>
<tr>
<td>15</td>
<td>ST - Attendance</td>
</tr>
<tr>
<td>16</td>
<td>ST - Feedback</td>
</tr>
<tr>
<td>17</td>
<td>ST - Templates</td>
</tr>
<tr>
<td>18</td>
<td>LE - Students</td>
</tr>
<tr>
<td>19</td>
<td>LE - Labs</td>
</tr>
<tr>
<td>20</td>
<td>LE - Pre-Labs</td>
</tr>
<tr>
<td>21</td>
<td>LE - Attendance</td>
</tr>
<tr>
<td>22</td>
<td>LE - Student Feedback</td>
</tr>
<tr>
<td>23</td>
<td>LE - Class Feedback</td>
</tr>
<tr>
<td>24</td>
<td>LE - Templates</td>
</tr>
<tr>
<td>25</td>
<td>LE - My Account</td>
</tr>
<tr>
<td>26</td>
<td>LA - Students</td>
</tr>
<tr>
<td>27</td>
<td>LA - Labs</td>
</tr>
<tr>
<td>28</td>
<td>LA - Pre-Labs</td>
</tr>
<tr>
<td>29</td>
<td>LA - Attendance</td>
</tr>
<tr>
<td>30</td>
<td>LA - Student Feedback</td>
</tr>
<tr>
<td>31</td>
<td>LA - Class Feedback</td>
</tr>
<tr>
<td>32</td>
<td>LA - Templates</td>
</tr>
<tr>
<td>33</td>
<td>LA - My Account</td>
</tr>
<tr>
<td>34</td>
<td>CA - Edit Accounts</td>
</tr>
<tr>
<td>35</td>
<td>CA - Create Accounts</td>
</tr>
<tr>
<td>36</td>
<td>CA - Account Associations</td>
</tr>
<tr>
<td>37</td>
<td>CA - Create Class</td>
</tr>
<tr>
<td>38</td>
<td>CA - Upload Answer File</td>
</tr>
<tr>
<td>39</td>
<td>CA - Templates</td>
</tr>
<tr>
<td>40</td>
<td>CA - My Account</td>
</tr>
</tbody>
</table>
# Unit Test Example

<table>
<thead>
<tr>
<th>Unit Test #</th>
<th>Field Being Tested</th>
<th>Action</th>
<th>Expected Outcome</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.01</td>
<td>Logout Button</td>
<td>Left Click</td>
<td>The user is logged out of the interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.02</td>
<td>Logout Button</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.03</td>
<td>Course Drop Down Menu</td>
<td>Left Click</td>
<td>The Course Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.04</td>
<td>Course Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.05</td>
<td>Section Drop Down Menu</td>
<td>Left Click</td>
<td>The Section Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.06</td>
<td>Section Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.07</td>
<td>Account Drop Down Menu</td>
<td>Left Click</td>
<td>The Account Type Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.08</td>
<td>Account Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.09</td>
<td>OK Button</td>
<td>Left Click</td>
<td>All of the filters are submitted for the query</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.10</td>
<td>OK Button</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.11</td>
<td>Edit Accounts</td>
<td>Left Click</td>
<td>Switches to the Edit Account Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.12</td>
<td>Edit Accounts</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Unit Test Example

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pear Software</strong></td>
<td>eSATA</td>
<td>Dr. Hunter &amp; Ms. Coder</td>
<td>Test 31: Templates</td>
<td></td>
</tr>
<tr>
<td><strong>Dependent Units:</strong></td>
<td>1 26, 27, 28 29, 30, 32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Test #6</th>
<th>Field Being Tested</th>
<th>Action</th>
<th>Expected Outcome</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.01</td>
<td>Layout Button</td>
<td>Left Click</td>
<td>The user is logged out of the interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.02</td>
<td>Layout Button</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.03</td>
<td>Course Drop Down Menu</td>
<td>Left Click</td>
<td>The Course Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.04</td>
<td>Course Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.05</td>
<td>Section Drop Down Menu</td>
<td>Left Click</td>
<td>The Section Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.06</td>
<td>Section Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.07</td>
<td>Account Drop Down Menu</td>
<td>Left Click</td>
<td>The Account Type Drop Down Menu is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.08</td>
<td>Account Drop Down Menu</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.09</td>
<td>OK Button</td>
<td>Left Click</td>
<td>All of the filters are submitted for the query</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>OK Button</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>Edit Accounts</td>
<td>Left Click</td>
<td>Switches to the Edit Account Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.12</td>
<td>Edit Accounts</td>
<td>Right Click</td>
<td>Menu Appears</td>
<td></td>
<td></td>
</tr>
</tbody>
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Prototype Screens

e-SATA Login
Prototype Screens

e-SATA

New User

- First Name:
- Last Name:
- E-mail:
- Re-Enter E-mail:
- New Password:
- Re-Type New Password:

Submit  Cancel
Prototype Screens

An email with your password has been sent to the email provided. You should receive it shortly.

Goto Login Screen
Prototype Screens

![Image of e-SATA interface for Daniel Nakhla]
Prototype Screens

Lab 1
Excel Zip File
Lab1.zip
Individual Files
Lab1_file1.xls
Lab1_file2.xls
Prototype Screens

User: Daniel Nakhla

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade</th>
<th>Date Due</th>
<th>Date Submitted</th>
<th>Average Grade</th>
</tr>
</thead>
</table>
Prototype Screens
## Questionnaire Results

### Number of Stores Carrying a Brand

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>For the Halibut</td>
<td>94</td>
<td>0.513661</td>
<td>86</td>
<td>0.443259</td>
<td>-0.06511</td>
</tr>
<tr>
<td>Capetown Cod</td>
<td>60</td>
<td>0.327669</td>
<td>58</td>
<td>0.296969</td>
<td>-0.03333</td>
</tr>
<tr>
<td>Magic Mackerel</td>
<td>25</td>
<td>0.136612</td>
<td>36</td>
<td>0.185567</td>
<td>0.44</td>
</tr>
<tr>
<td>Fisherman’s Delight</td>
<td>4</td>
<td>0.021868</td>
<td>14</td>
<td>0.072165</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total Stores</strong></td>
<td><strong>183</strong></td>
<td></td>
<td><strong>194</strong></td>
<td></td>
<td><strong>0.060103</strong></td>
</tr>
</tbody>
</table>

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March 6, 2007  Detailed Design - Pear Software 23
Prototype Screens

User: Daniel Nakhla

Attendance

Nakhla, Daniel
Prototype Screens

<table>
<thead>
<tr>
<th>Name</th>
<th>Error #</th>
<th>Cell</th>
<th>Points Deducted</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nakhla, Daniel</td>
<td>1</td>
<td>A9</td>
<td>10</td>
<td>Red Value</td>
</tr>
<tr>
<td>Nakhla, Daniel</td>
<td>2</td>
<td>H11</td>
<td>1</td>
<td>Blank Cell</td>
</tr>
</tbody>
</table>

March 6, 2007

Detailed Design - Pear Software
Prototype Screens

e-SATA
User: Daniel Nakhla

Lab 2: lab1.zip
- info.doc
- part1.xls
- part2.xls
- part3.xls

Pre Lab 1: Prelab1.zip
- info.doc
- part1.xls
Prototype Screens
Prototype Screens
Prototype Screens

e-SATA
Lab Instructor

<table>
<thead>
<tr>
<th>Name</th>
<th>File</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>14</td>
<td>89</td>
</tr>
<tr>
<td>2nd</td>
<td>100</td>
<td>72</td>
</tr>
<tr>
<td>3rd</td>
<td>152</td>
<td>87</td>
</tr>
<tr>
<td>4th</td>
<td>150</td>
<td>70</td>
</tr>
</tbody>
</table>

**Student Feedback**

- Date Submitted: 10/24/2006
- Average Grade: 80

**Class Feedback**

- Date Submitted: 10/25/2006
- Average Grade: 82

**Template**

- Date Submitted: 10/26/2006
- Average Grade: 82

**My Account**

- Date Submitted: 10/27/2006
- Average Grade: 82

Total: 30
### Export To Excel

<table>
<thead>
<tr>
<th></th>
<th>User</th>
<th>Lab 1</th>
<th>Lab 2</th>
<th>Lab 3</th>
<th>Lab 4</th>
<th>Lab 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>User</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dan Nakhla</td>
<td>85</td>
<td>92</td>
<td>97</td>
<td>80</td>
<td>76</td>
</tr>
<tr>
<td>3</td>
<td>Lou Poles</td>
<td>79</td>
<td>82</td>
<td>85</td>
<td>80</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>Carry Okie</td>
<td>95</td>
<td>96</td>
<td>90</td>
<td>87</td>
<td>99</td>
</tr>
</tbody>
</table>
Prototype Screens
Prototype Screens

e-SATA Lab Instructor

Detailed Design - Pear Software
Prototype Screens

e-SATA
Lab Instructor

File: Lab 1
Common Errors:

File: Lab 1.err
frequency: 0
Call: Bill
Error:

File: Lab 2.err
Frequency: 948
Call: C4
Error: Wrong Format
Prototype Screens
Prototype Screens

![Prototype Screens](image-url)
Prototype Screens
Prototype Screens

![Prototype Screens](image-url)
Prototype Screens
Prototype Screens

e-SATA
Lecture Instructor

File: Lab 1
Common Errors:

File: Lab 1
Frequency: 85%
Call: B1
Error: 

File: Lab 1
Frequency: 94%
Call: C4
Error: Wrong Format
Prototype Screens

![Prototype Screens](image-url)
Prototype Screens

Lecture Instructor

First Name: [input field]
Last Name: [input field]
Email: [input field]
Old Password: [input field]
New Password: [input field]
Confirm Password: [input field]
Prototype Screens
Prototype Screens
Prototype Screens
Prototype Screens
Prototype Screens
Sample Answer Key File

// Answer Key Sample
// Checks that Value of cell B6 is 6
// Error is worth 10 points
// V denotes value type of problem
// B6 specifies the CELL
// 6 specifies the correct value
// 10 specifies the grade weight of the error
// Codes are comma delimited
// Denotes a comment

V : B6 : 6 : 10,
V : B7 : 11 : 5,
V : B8 : =B6-B7 : 15,
V : B9 : =SUM(B6:B8) : 10,
Prototype Screens
Prototype Screens
## Questionnaire Results

**Number of Stores Carrying a Brand**

<table>
<thead>
<tr>
<th>Brand</th>
<th>2002</th>
<th>2003</th>
<th>Share</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolander</td>
<td>94</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Cod</td>
<td>60</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magic Mackerel</td>
<td>25</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisherman's Delight</td>
<td>4</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Stores</strong></td>
<td><strong>183</strong></td>
<td><strong>194</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Sample Template File**
Prototype Screens
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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?
  – Acceptance Test:
    • Document Delivery: April 30th, 2007
    • Presentation: May 1st, 2007
  – Academic Celebration
    • May 4th, 2007