

Milestone 2

Team Sriram

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Changes (based off Git commits)

Date Time	Description
26 September 2011 7:11 pm	Initial version
28 September 2011 9:29 am	Changed use case template
28 September 2011 4:42 pm	Added some use cases
28 September 2011 5:22 pm	Added more use cases
28 September 2011 5:31 pm	Changed use cases
7 October 2011 5:00 pm	Finishing Milestone 2

1 Executive Summary

This milestone, the second of a series, documents the context for a software project proposed by the client, Tim Ekl. This document also keeps track of the use cases involved with the final product which include adding an item, basic searching, advanced searching, sorting search results, viewing item details, editing item details, and generating inventory reports. All of the use cases satisfy a set of features and keep track of actors, basic/alternative flow of events, pre-conditions, post-conditions, and extension points. In addition, this document storyboards the final product as well as keep track of the context/data flow diagrams.

2 Introduction

This document is intended as an aid for both the client (Tim Ekl) and the development team (Team Sriram) in order to maintain a consistent notion of the final product. In addition to the user environment, user needs, features, client background, and current system (information derived from the first milestone), this documentation also contains all of the intended use cases for the final product which include: adding an item, basic searching, advanced searching, sorting search results, viewing item details, editing item details, and generating inventory reports. The use cases are derived from a set of features and consist of a basic description of the functionality, a listing of all the entities that interact with the system, the assumptions of the system state before the basic flow of events, the procedure for a successful run-through, the procedure for alternative run-throughs, the assumptions of the system state after the basic flow of events, and references to extensions of the use case.

In addition to the use cases, the document also contains the context and data flow diagrams for all of the use cases as well as storyboards for most of the use cases. Information from this document is intended to be carried over towards the project background and the test cases for the fourth milestone.

3 User Environment

- The client uses Chrome [9] whenever possible and prefers that development support Chrome [9] and Firefox [10] browsers.
- The final product should operate on a Linux server with standard programming languages, programming frameworks, and Apache[11]. Additional packages can be installed if necessary.

4 User Needs

ID	Need	Priority
N0	Search for parts based off their attributes	Primary
N1	Identify items via bar codes	Primary
N2	Keep track of the data associated with an asset	Primary
N3	Organize search results	Primary
N4	Insert objects in the system at any point; do not freeze the database	Secondary
N5	Modify objects; including adding notes to the objects	Secondary
N6	Access from a second physical location	Optional
N7	View most-recently acquired asset(s)	Optional
N8	View a summary of inventory data	Optional

Legend:

Primary - Necessary to the system

Secondary - Important to the system

Optional - Would be nice to have in the system

5 Features

5.1 Feature Listing

ID	Feature	Priority	Effort	Risk	Stability	Target Release	Assigned To
F0	Online UI	Critical	High	High	Low	1.0	Eric
F1	Add assets to the inventory	Critical	Low	High	Low	1.0	Richard
F2	Modify assets in the inventory	Critical	Low	High	Low	1.0	Taylor
F3	The system keeps track of attributes based on category	Critical	Low	High	Low	1.0	Susi
F4	Use a UPC-A barcode as the unique identifier for each asset	Critical	Low	Medium	Low	1.0	Eric
F5	Provide an updated list of recently-added assets	Useful	Medium	Low	Medium	1.5	Richard
F6	Generate reports of asset inventory	Useful	High	Low	Medium	2.0	Taylor
F7	Sort search results based off of barcode, title, and modified/created timestamp	Useful	High	Low	Low	2.0	Susi
F8	Basic search for items based on name or UPC	Critical	High	High	Low	1.0	Eric
F9	Advanced search for items based on all fields related to the item and its category	Critical	High	High	Low	1.0	Richard
F10	Basic and Advanced searches allow the user to include wildcards in the query	Critical	High	High	Low	1.0	Taylor
F11	Basic and Advanced searches will search first by exact/wildcard match, then by fuzzy match	Critical	High	High	Low	1.0	Susi
F12	REST API	Critical	High	High	Low	1.0	Eric

Legend:

Critical - Highest importance

Important - Medium importance

Useful - Lowest importance

High/Medium/Low - Degree of a category

1.0 - First release of the system

1.5 - Next release of the system with significant changes

2.0 - Final release of the system

5.2 Feature-to-Need Correspondence

	N0	N1	N2	N3	N4	N5	N6	N7	N8
F0						X			
F1			X		X				
F2			X			X			
F3			X		X	X			
F4	X	X	X						
F5							X		
F6									X
F7	X	X		X					
F8	X	X	X	X					
F9	X	X	X	X					
F10	X	X	X	X					
F11	X	X	X	X					
F12							X		

6 Client Background

Tim Ekl is a Rose-Hulman graduate student who possesses a significant amount of computer hardware. He plans on using this system to be able to quickly and easily locate the equipment he wants to use. Tim is an experienced developer and plans on maintaining the system after it is finished.

7 Current System

The client does not have a software solution in place. Currently, Tim has a primitive categorization system in place which involves labeling boxes and then trying to deduce the location of a desired component. The current system poses a few issues such as not always allowing him to find his items, i.e. there have been instances where an item was found after capital was spent to replace it.

8 Use Case-to-Feature Correspondence

	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
UC1	X	X		X	X	X							
UC2	X				X			X	X		X	X	
UC3	X			X	X			X		X	X	X	
UC4	X			X	X			X					
UC5	X			X	X								
UC6	X		X	X	X	X							
UC7	X			X	X		X						

9 Use Cases

Use case syntax

Each use case is divided into 8 sections:

- A “Basic Description” section which gives an overview of what functionality the use case demonstrates.
- An “Actors” section to describe who or what interacts with the system in the use case.

- A "Pre-conditions" section which contains the assumptions made, especially those pertaining to the state of the system, prior to the start of the use case.
- A "Basic Flow of Events" section which details the order of events done by the actor(s) and the system under standard conditions. If a particular step in the basic flow has the possibility of failing to occur successfully, one or more alternative flow listings are presented in brackets following the possibility of failure. Each alternative flow listing matches to an alternative flow in the "Alternative Flow" section. If a basic flow step fails, the alternative flow that is listed with it is followed as the next step.
- An "Alternative Flow of Events" section which holds each alternative flow listed in the basic flow. Each alternative flow has a unique identifier used to reference it, a short name describing the condition that would cause the alternative flow to be followed, and the order of actions performed by the actor(s) and the system under the flow's conditions. If an action has the possibility of failing, alternatives to that flow are presented just as they are in the basic flow with a reference to the alternative flow to take.
- A "Post-conditions" section which contains guarantees on the result of the use case.
- An "Extension Points" section which contains references to other use cases which the completion of the current use case might lead into.

9.1 Add an Item

Brief Description This use case shows the procedure for adding an item to the inventory.

Actors

- User

Pre-conditions

- The current page must have a link to the "Add Item" page.

Basic Flow of Events

1. The user clicks the "Add Item" link. [A0]
2. The user fills in the required fields. [A1]
3. The system dynamically adds the optional attribute fields for the category chosen.
4. The user fills in the appropriate optional attributes and "Notes" fields.
5. The user clicks the "Add Item" button. [A2]
6. The system adds the item to the inventory database.

Alternative Flows of Events

Alternative Flow A0: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A1: Required Fields Ommitted

1. The user does not fill in the required title or UPC fields.
2. Steps 3, 4, and 5 from the basic flow.
3. The server notifies the user that the required fields were not completed.

Alternative Flow A2: UPC not Unique

1. The system notifies the user that the item cannot be added because the UPC is not unique.

Post-conditions

- The user is brought to the home page.
- The added item is displayed under the "Recent Changes" list.

Extension Points None

9.2 Basic Search for an Item

Brief Description This use case shows how a basic search from any page would proceed. This case will encompass the progression from the user entering the search term to the display of the search result(s).

Actors

- User

Pre-conditions

- The current page must have a basic search box.

Basic Flow of Events

1. The user types a query in the search box.
2. The user clicks the search button.
3. The browser sends a request to the server. [A0]
4. The server queries the database for items entered into the system that match the query. [A1]
5. The server responds with the formatted and sorted results of the database query. [A2]
6. The user is directed to the Advanced Search page with the results of the basic search displayed at the bottom.

Alternative Flows of Events

Alternative Flow A0: Empty Query

1. The user remains on the current page.

Alternative Flow A1: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A2: No Matches

1. The server responds with the message "No results."
2. The results page displays the message returned by the server.

Post-conditions

- The results page will display the response from the server or that the server was unreachable.
- The search box will preserve the search term that was originally entered.
- The results will be prioritized and sorted according to exact matching, then fuzzy matching.
- The results will be matched using wildcards if they are present in the query. This will replace the exact matching, and fuzzy matching will then be done on the query with the wildcard characters removed.

Extension Points

- 5.4 Search Result Sorting
- 5.5 View Details of an Item

9.3 Advanced Search for an Item

Brief Description This use case shows how a search from the advanced search page would proceed. This case will encompass the progression from the user entering the search term to the display of the search result(s).

Actors

- User

Pre-conditions

- The current page must be the advanced search page.

Basic Flow of Events

1. The user chooses a category from a dropdown menu. [A0]
2. The category selection is sent to the server.
3. The server responds with the attribute fields related to the category. [A1]
4. The category's attribute fields are dynamically added to the page.
5. The user optionally fills in the attribute, name, and UPC fields appropriately.
6. The user clicks the search button.
7. The browser sends a request to the server.
8. The server queries the database for items entered into the system that match the query. [A1]
9. The server responds with the formatted and sorted results of the database query. [A3]
10. The list of candidates for the search parameter(s) provided is dynamically added to the bottom part of the page.

Alternative Flow of Events

Alternative Flow A0: No Category

1. The user fills in the name and/or UPC.
2. Return to basic flow step 6.

Alternative Flow A1: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A2: Empty Query

1. The user remains on the current page.

Alternative Flow A3: No Matches

1. The server responds with the message "No results."
2. The results page displays the message returned by the server.

Post-conditions

- The results page will display the results of the search.
- The search fields will preserve the search parameter(s) that were originally entered.
- If appropriate, the results will be prioritized and sorted according to exact matching, then fuzzy matching.
- The results will be matched using wildcards if they are present in the query. This will replace the exact matching, and fuzzy matching will then be done on the query with the wildcard characters removed.
- If completed, the category field will only use exact matching.

Extension Points

- 5.4 Search Result Sorting
- 5.5 View Details of an Item

9.4 Search Result Sorting

Brief Description This use case shows how changing the sorting of the items on the search results page would proceed. This case will encompass the progression from the user clicking the sort type link to the display of the search result(s) in the new order.

Actors

- User

Pre-conditions

- The current page must be the search results page.

Basic Flow of Events

1. The user clicks on a sort type link (options are Name, UPC, Recently Created, and Recently Modified).
2. The browser sends a request to the server.
3. The server queries the database for items entered into the system that match the query. [A0]
4. The server responds with the formatted and sorted results of the database query. [A1]
5. The screen displays to the user a list of candidates for the search parameter(s) provided.

Alternative Flow of Events

Alternative Flow A0: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A1: No Matches

1. The server responds with the message "No results."
2. The results page displays the message returned by the server.

Post-conditions

- The results page will display the results of the search.
- The search field(s) will preserve the search parameter(s) that were originally entered.
- The search fields will be sorted by match method first (wildcard, exact, or fuzzy), then by the selected sort type.

Extension Points

- 5.5 View Details of an Item

9.5 View Details of an Item

Brief Description This use case shows how a user would select an item from a list to view more detailed information about it.

Actors

- User

Pre-conditions

- The current page must have a link to the item which the user would like to view, as might happen in search results list or the recently modified items list.

Basic Flow of Events

1. The user clicks on an item (in search results, the recent changes list, or any other place with items listed).
2. The browser queries the server for the item using the UPC code to specify the item.
3. The server responds with all the data stored about the item. [A0]
4. The browser takes the user to a new page with all the data about the item that the server sent. It is displayed in elements labeled with "Category:", "Size:", etc. [A1]

Alternative Flow of Events

Alternative Flow A0: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A1: Item not Found

1. The page displays a message saying that the item could not be found.

Post-conditions

- The page will display all data about the item that the system currently has logged for the item

Extension Points

- 5.6 Edit Details of an Item

9.6 Edit Details of an Item

Brief Description This use case shows how a user would modify an item that already exists in the server and save the edited/new field information for future viewing.

Actors

- User

Pre-conditions

- The current page must be an item's detailed description page.

Basic Flow of Events

1. The user clicks on the value of a field.
2. The page replaces the element with a text field containing the text that was in the element.
3. The user makes the desired changes to the value.
4. The user clicks outside of the field.
5. The browser sends a request to the server asking the value to be changed in the database.
6. The server changes the value in the database. [A0, A1]
7. The server responds that the value was changed.
8. The page changes the text field back into a div element that contains the updated value of the field.

Alternative Flow of Events

Alternative Flow A0: Server is Down

1. The user is notified that the server could not be reached.

Alternative Flow A1: Change Unsuccessful

1. The server responds that the value could not be changed.
2. The page notifies the user that the value could not be changed.
3. The user presses "Ok" in the message dialog.
4. The text field is focused again.

Post-conditions

- The data on the page will represent the updated state of the data in the system.

Extension Points None

9.7 Generate Inventory Report

Brief Description This use case shows the procedure for generating reports of the item inventory.

Actors

- User

Pre-conditions

- The current page must have a link to the "Generate Report" page.

Basic Flow of Events

1. The user clicks the "Generate Report" link. [A0]
2. The user is brought to the "Generate Report" page.
3. The user chooses what type of report to generate.
4. The user chooses appropriate report fields for the respective option.
5. The system generates the report accordingly.

Alternative Flows of Events

Alternative Flow A0: Server is Down

1. The user is notified that the server could not be reached.

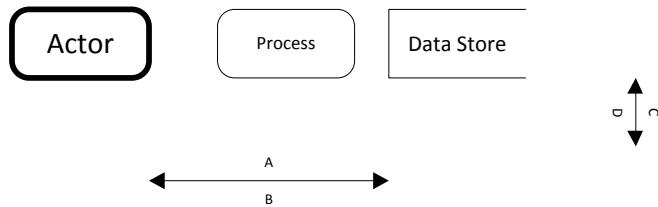
Post-conditions

- After basic step 5, the user is displayed the report which is generated as specified.

Extension Points None

10 Data Flow Diagrams

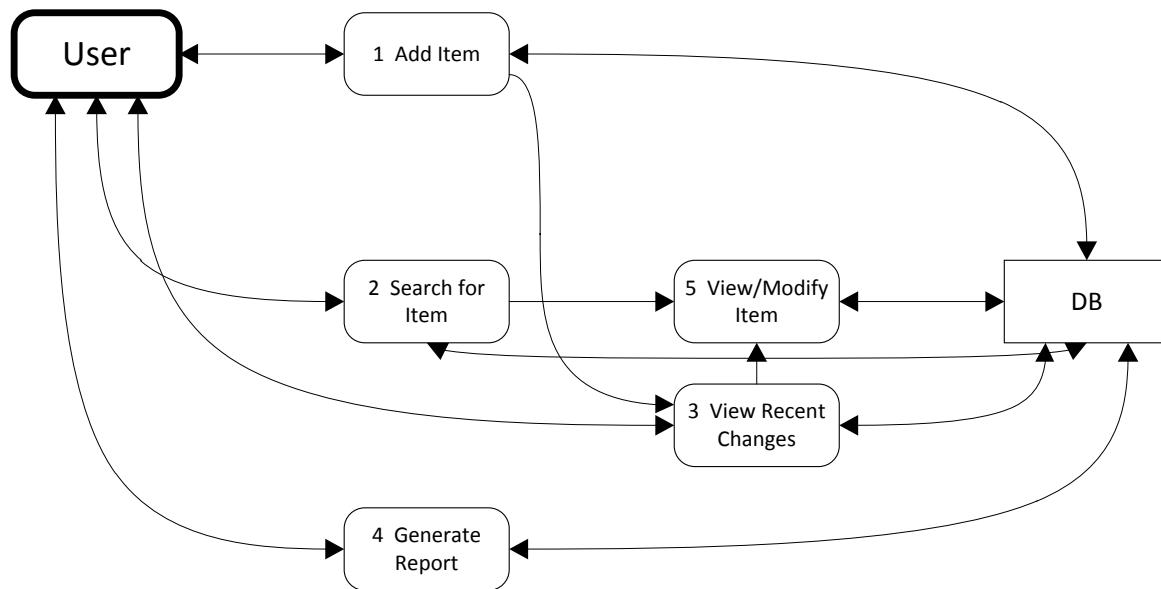
DFD Legend



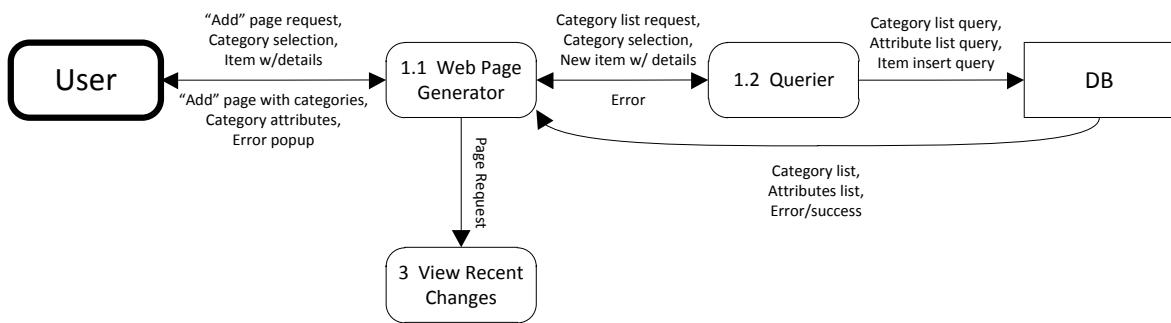
- Actor = some user or another system that interacts with the system.
- Process = name of some action that will be taken on the data
- Data Store = something like a file or database that stores data

With the bidirectional arrows the data listed above the arrow (like A) flows left-to-right, data listed below the arrow (like B) flows right-to-left, data listed to the right of the arrow (like C) flows top-to-bottom, and data listed to the left of the arrow (like D) flows bottom-to-top.

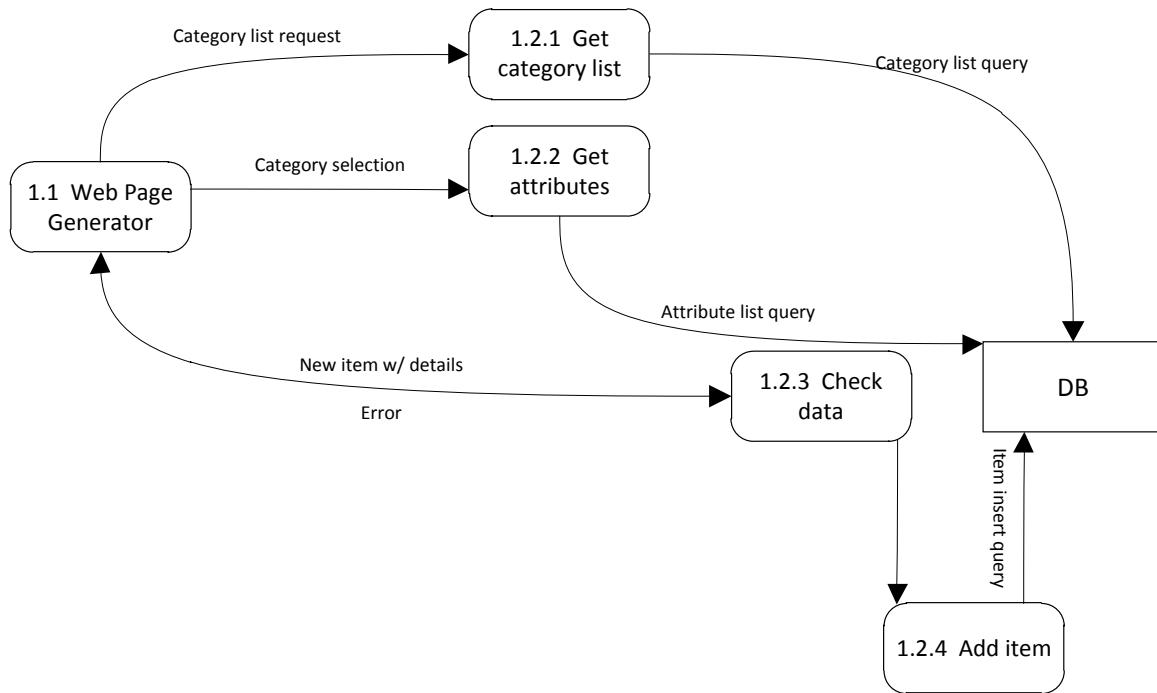
Context/Level 0



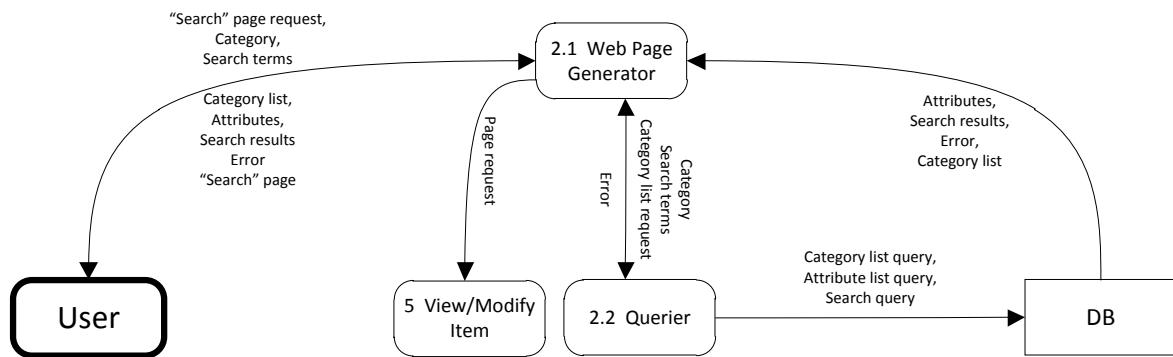
Level 1: Add Item



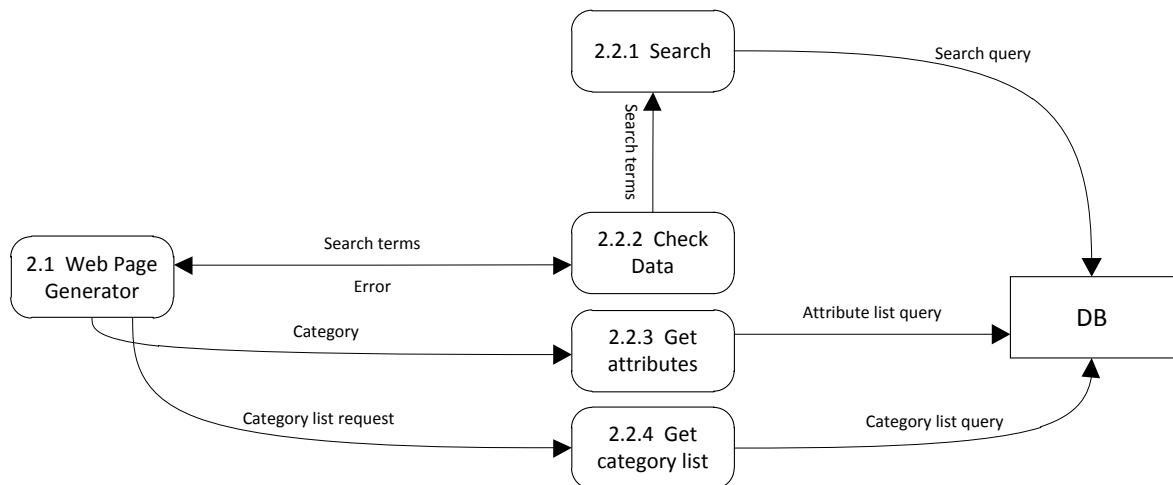
Level 2: Add Item–Querier



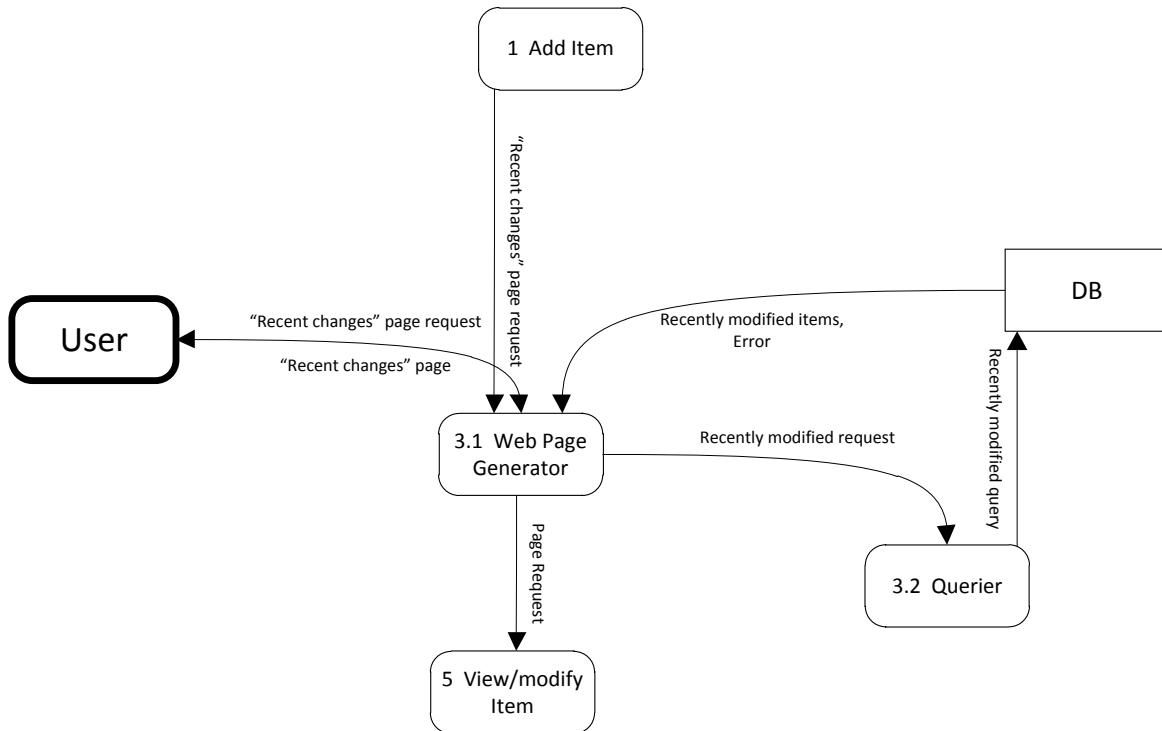
Level 1: Search for Item



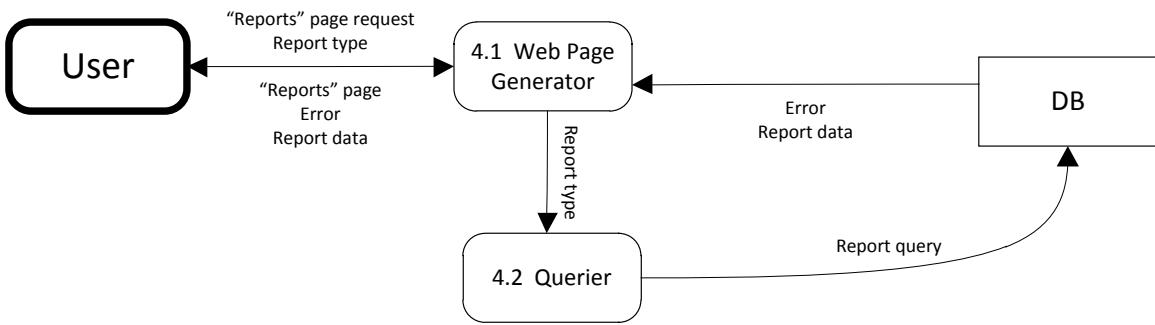
Level 2: Search for Item–Querier



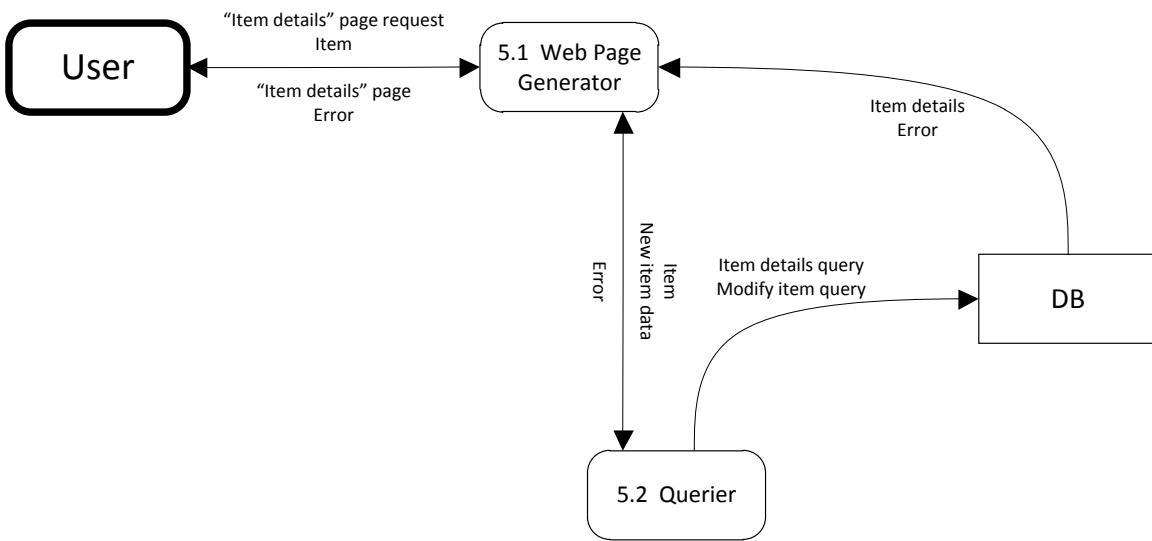
Level 1: View Recent Changes



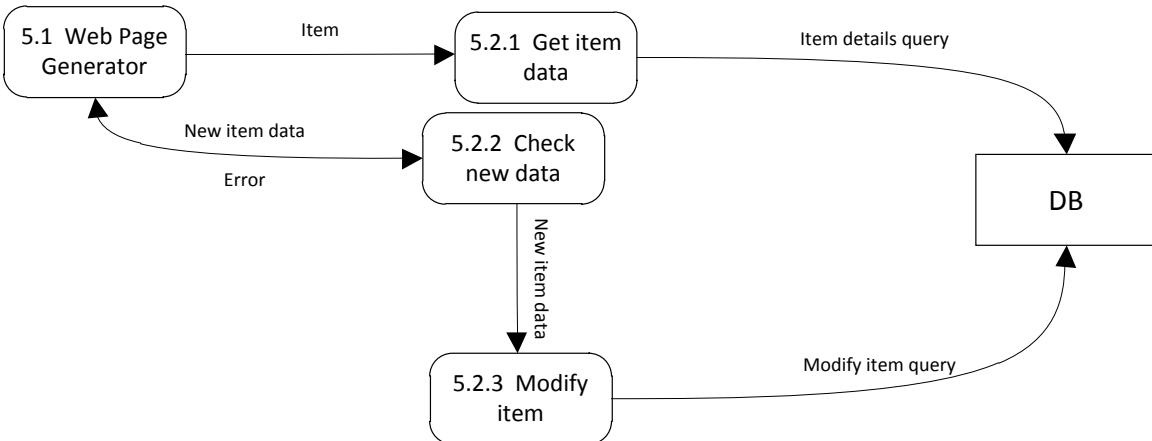
Level 1: Generate Report



Level 1: View/Modify Item



Level 2: View/Modify Item—Querier



11 Storyboards

11.1 Add an Item

F0S0

The screenshot shows the homepage of the Personal Inventory Tracker. On the left, there is a sidebar with links: Main Page, Add Item, Advanced Search, and Reports. The main content area has a title "Personal Inventory Tracker". Below the title are search fields: "Search: [text input field] (Search) Advanced Search". A section titled "Recent changes:" lists five items:

- 4GB DDR2 RAM for HP EliteBook 8530w laptop**
Created: 23/9/2011 3:40 pm Modified: 23/9/2011 3:50 pm
UPC: 123456789999
Category: RAM
Size: 4GB
Speed: DDR2
- 2GB DDR3 RAM for Dell Inspiron 1520 laptop**
Created: 23/9/2011 3:49 pm Modified: 23/9/2011 3:50 pm
UPC: 123456789999
Category: RAM
Size: 2GB
Speed: DDR3
- 1.5TB 5400 RPM internal hard drive formatted in NFTS**
Created: 23/9/2011 3:40 pm Modified: 23/9/2011 3:40 pm
UPC: 012345678989
Category: Internal Hard Drive
Size: 1.5TB
Speed: 5400 RPM
- 2TB 7200 RPM external hard drive formatted in NFTS**
Created: 23/9/2011 3:38 pm Modified: 23/9/2011 3:38 pm
UPC: 987654321111
Category: External Hard Drive
Size: 2TB
Speed: 7200 RPM
- 25" 16:9 monitor with maximum resolution of 1920x1200**
Created: 23/9/2011 3:30 pm Modified: 23/9/2011 3:30 pm
UPC: 978655412345
Category: Monitor
Size: 25"
Aspect Ratio: 16:9

The user clicks on the "Add Item" link and is taken to the "Add Item" page.

F0S1

The screenshot shows the "Add Item" page. The title is "Add Item". There are input fields for "Name:" and "UPC:". A dropdown menu for "Category:" is open, showing options: External Hard Drive, Internal Hard Drive, RAM, and Uncategorized. A text input field for "Notes:" is present. At the bottom is a "Add" button.

The user opens the category selection box, which opens to display the available categories.

F0S2

The screenshot shows a web-based application for adding items. On the left, there's a sidebar with 'Links' and several navigation options: Main Page, Add Item (which is highlighted in blue), Advanced Search, and Reports. The main area has a title 'Add Item'. It contains fields for 'Name' (a text input box), 'UPC' (another text input box), and 'Category' (a dropdown menu set to 'RAM'). Below these are two dropdown menus: 'Size' and 'Speed', each followed by a text input box. A large 'Notes' area is present with a text input box, and at the bottom is an 'Add' button.

The user selects "ram" as the category from the combo box.

F0S3

This screenshot is identical to F0S2, but the 'Size' dropdown menu is now expanded, showing two options: 'Size' and 'Speed'. The 'Speed' option is currently selected, and its corresponding text input box is visible.

The user expands the drop down box of attributes, which is filled with RAM attribute types.

F0S4

Add Item

Links:
[Main Page](#)
[Add Item](#)
[Advanced Search](#)
[Reports](#)

Name:

UPC:

Category: RAM

Size :

Manufacturer :

:

Notes:

The user selects the "size" attribute and a new attribute/value line comes up which the user types the new attribute type "Manufacturer" into.

F0S5

Add Item

Links:
[Main Page](#)
[Add Item](#)
[Advanced Search](#)
[Reports](#)

Name: 2GB DDR3 RAM for Dell Inspiron 1520 laptop

UPC: 912837465555

Category: RAM

Size : 2GB

Manufacturer : Dell

:

Notes:

The user then goes about filling in all of the information for the name, UPC, and each attribute. Then the user clicks the "add" button, which returns them to the "Recent Changes" screen. [if no UPC filled before clicking "add," go to F1S5] [if UPC already exists in system upon clicking "add," go to F2S5]

F0S6

The screenshot shows a web application titled "Personal Inventory Tracker". On the left, there's a sidebar with "Links:" and links to "Main Page", "Add Item", "Advanced Search", and "Reports". The main content area has a search bar with "Search:" and buttons for "Search" and "Advanced Search". Below the search is a section titled "Recent changes:" containing five items:

- 2GB DDR3 RAM for Dell Inspiron 1520 laptop**
Created: 23/9/2011 3:29 pm
Modified: 23/9/2011 3:30 pm
UPC: 912837465555
Category: RAM
Size: 2GB
Manufacturer: Dell
- 4GB DDR2 RAM for HP EliteBook 8530w laptop**
Created: 23/9/2011 3:29 pm
Modified: 23/9/2011 3:30 pm
UPC: 012345678999
Category: RAM
Size: 4GB
Speed: DDR2
- 2GB DDR3 RAM for Dell Inspiron 1520 laptop**
Created: 23/9/2011 3:45 pm
Modified: 23/9/2011 3:46 pm
UPC: 123456789999
Category: RAM
Size: 2GB
Speed: DDR3
- 1.5TB 5400 RPM internal hard drive formatted in NTFS**
Created: 23/9/2011 3:49 pm
Modified: 23/9/2011 3:50 pm
UPC: 012345678989
Category: Internal Hard Drive
Size: 1.5TB
Speed: 5400 RPM
- 2TB 7200 RPM external hard drive formatted in NTFS**
Created: 23/9/2011 3:35 pm
Modified: 23/9/2011 3:36 pm
UPC: 987654321111
Category: External Hard Drive
Size: 2TB
Speed: 7200 RPM

The top listing in the recent changes list is the RAM that the user had just added to the system.

F1S5

The screenshot shows an "Add Item" form. On the left, there's a sidebar with "Links:" and links to "Main Page", "Add Item", "Advanced Search", and "Reports". The main form has fields for Name (2GB DDR3 RAM for Dell Inspiron 1520 laptop), UPC (empty), Category (RAM), Size (2GB), and Manufacturer (Dell). Below these is a "Notes:" field with a message: "Required Field Missing" and "You are missing the required UPC Field. Please enter it in and click the "Add" button again." There are "Ok" and "Add" buttons at the bottom.

A popup appears that informs the user that the UPC field is required. The user clicks "ok" and the popup goes away.

F2S5

The screenshot shows the 'Add Item' form with the following fields filled in:

- Name: 2GB DDR3 RAM for Dell Inspiron 1520 laptop
- UPC: 123456789999
- Category: RAM
- Size: 2GB
- Manufacturer: Dell

A note field contains "Notes:". A modal dialog box titled "UPC Not Unique" displays the message: "The UPC you provided is not unique. You may have already entered in this item, or there may be an incorrect UPC." An "Ok" button is at the bottom right of the dialog.

A popup appears that informs the user that the UPC field is not unique.
The user clicks ok and the popup goes away.

11.2 Basic Search for an Item

F0S0

The screenshot shows the "Personal Inventory Tracker" search results page. The search bar contains "2GB DDR3". The results are listed in a table:

Recent changes:
4GB DDR2 RAM for HP EliteBook 8530w laptop Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm UPC: 012345678999 Category: RAM Size: 4GB Speed: DDR2
2GB DDR3 RAM for Dell Inspiron 1520 laptop Created: 23/9/2011 3:46 pm Modified: 23/9/2011 3:46 pm UPC: 123456789999 Category: RAM Size: 2GB Speed: DDR3
1.5TB 5400 RPM internal hard drive formatted in NFTS Created: 23/9/2011 3:40 pm Modified: 23/9/2011 3:40 pm UPC: 0123456789889 Category: Internal Hard Drive Size: 1.5TB Speed: 5400 RPM
2TB 7200 RPM external hard drive formatted in NFTS Created: 23/9/2011 3:39 pm Modified: 23/9/2011 3:39 pm UPC: 987654321111 Category: External Hard Drive Size: 2TB Speed: 7200 RPM
25" 16:9 monitor with maximum resolution of 1920x1200 Created: 23/9/2011 3:30 pm Modified: 23/9/2011 3:30 pm UPC: 978654324345 Category: Monitor Size: 25" Aspect Ratio: 16:9

The user fills in "2GB DDR3" into the search bar and clicks the "Search" button. This takes the user to the Advanced Search results page. [if query is empty, stay here]

F0S1

The screenshot shows the 'Advanced Search' page. On the left, there's a sidebar with 'Links:' and links to 'Main Page', 'Add Item', 'Advanced Search', and 'Reports'. The main area has fields for 'Name' (2GB DDR3), 'UPC', and 'Category'. A 'Search' button is below the fields. Below the search bar is a 'Search Results' section with a 'Sort By' dropdown set to 'Name'. It lists one result: '2GB DDR3 RAM for Dell Inspiron 1520 laptop' with details: Created: 29/02/2011 3:48 pm, UPC: 123456789999, Category: RAM, Size: 2GB, Speed: DDR3.

The "Name" attribute is filled with the user's old query phrase and at the bottom of the screen is the list of search results. [if there are no search results, goto F2S1]

F2S1

The screenshot shows the 'Advanced Search' page. The sidebar is identical to F0S1. The search fields have 'Name' set to 'Nonexistent Item'. The 'Search' button is present. Below the search bar is a 'Search Results' section with a 'Sort By' dropdown set to 'Name'. It displays the message 'No results'.

The "Name" attribute is filled with the user's old query phrase and at the bottom of the screen is the title "Search Results" with "no results" underneath it.

11.3 Advanced Search for an Item

F0S0

Personal Inventory Tracker

Search: [Advanced Search](#)

Links:

[Main Page](#)
[Add Item](#)
[Advanced Search](#)
[Reports](#)

Recent changes:	
4GB DDR2 RAM for HP EliteBook 8530w laptop	<small>Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm UPC: 012345678999 Category: RAM Size: 4GB Speed: DDR2</small>
2GB DDR3 RAM for Dell Inspiron 1520 laptop	<small>Created: 23/9/2011 3:49 pm UPC: 123456789999 Category: RAM Size: 2GB Speed: DDR3</small>
1.5TB 5400 RPM internal hard drive formatted in NFTS	<small>Created: 23/9/2011 3:40 pm UPC: 0123456769889 Category: Internal Hard Drive Size: 1.5TB Speed: 5400 RPM</small>
2TB 7200 RPM external hard drive formatted in NFTS	<small>Created: 23/9/2011 3:39 pm UPC: 987654321111 Category: External Hard Drive Size: 2TB Speed: 7200 RPM</small>
25" 16:9 monitor with maximum resolution of 1920x1200	<small>Created: 23/9/2011 3:30 pm UPC: 978654412345 Category: Monitor Size: 25 Aspect Ratio: 16:9</small>

The user clicks on the "Advanced Search" link and is taken to the "Advanced Search" page.

F0S1

Advanced Search

Name:

UPC:

Category:

Notes:

[External Hard Drive](#)
[Internal Hard Drive](#)
[RAM](#)
[Unategorized](#)

The user opens the category selection box, which opens to display the available categories. [if instead of setting the category, the user fills in the UPC field and clicks search, go to F1S3]

F0S2

Links:
Main Page
Add Item
Advanced Search
Reports

Name:
UPC:
Category: RAM
Size:
Speed:
Notes:

The user selects "RAM" as the category from the combo box. Each possible attribute type of RAM is displayed below with the ability to set the field value for each attribute.

F0S3

Links:
Main Page
Add Item
Advanced Search
Reports

Name:
UPC:
Category: RAM
Size: 4GB
Speed: DDR2
Notes:

Search Results Sort By: Name | [UPC](#) | [Recently Created](#) | [Recently Modified](#)

4GB DDR2 RAM for HP EliteBook 8530w laptop	Created: 23/9/2011 3:50 pm	Modified: 23/9/2011 3:50 pm
UPC: 012345678999	Category: RAM	Size: 4GB
Speed: DDR2		

The user then fills in some attributes and clicks search. This creates a list of item that match the search at the bottom of the screen to appear.

F1S3

Advanced Search

Name:

UPC:

Category: ▾

Size:

Speed:

Notes:

Search Results Sort By: Name | UPC | Recently Created | Recently Modified

4GB DDR2 RAM for HP EliteBook 8530w laptop
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 012345678999
Category: RAM
Size: 4GB
Speed: DDR2

The Item with the matching UPC number is shown.

11.4 Search Result Sorting

F0S0

Advanced Search

Name:

UPC:

Category: RAM ▾

Size:

Speed:

Notes:

Search Results Sort By: Name | UPC | Recently Created | Recently Modified

2GB DDR3 RAM for Dell Inspiron 1520 laptop
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 123456789009
Category: RAM
Size: 2GB
Speed: DDR3

4GB DDR2 RAM for HP EliteBook 8530w laptop
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 012345678999
Category: RAM
Size: 4GB
Speed: DDR2

The user is on the advanced search results page with some results at the bottom that match his search. He clicks the "UPC" link in the "Sort By:" bar.

F0S1

Links:

[Main Page](#)
[Add Item](#)
[Advanced Search](#)
[Reports](#)

Advanced Search

Name:

UPC:

Category: RAM ▾

Size:

Speed:

Notes:

Search Results Sort By: [Name](#) | [UPC](#) | [Recently Created](#) | [Recently Modified](#)

[4GB DDR2 RAM for HP EliteBook 8530w laptop](#)
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 012345678999
Category: RAM
Size: 4GB
Speed: DDR2

[2GB DDR3 RAM for Dell Inspiron 1520 laptop](#)
Created: 23/9/2011 3:45 pm Modified: 23/9/2011 3:50 pm
UPC: 123456789999
Category: RAM
Size: 2GB
Speed: DDR3

The same results page is loaded again, this time with the items sorted by ascending UPC.

11.5 View Details of an Item

F0S0

Links:

[Main Page](#)
[Add Item](#)
[Advanced Search](#)
[Reports](#)

Personal Inventory Tracker

Search: [Advanced Search](#)

Recent changes:

[2GB DDR3 RAM for Dell Inspiron 1520 laptop](#)
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 912345748555
Category: RAM
Size: 2GB
Manufacturer: Dell

[4GB DDR2 RAM for HP EliteBook 8530w laptop](#)
Created: 23/9/2011 3:20 pm Modified: 23/9/2011 3:50 pm
UPC: 012345678999
Category: RAM
Size: 4GB
Speed: DDR2

[2GB DDR3 RAM for Dell Inspiron 1520 laptop](#)
Created: 23/9/2011 3:45 pm Modified: 23/9/2011 3:50 pm
UPC: 123456789999
Category: RAM
Size: 2GB
Speed: DDR3

[1.5TB 5400 RPM internal hard drive formatted in NFTS](#)
Created: 23/9/2011 3:45 pm Modified: 23/9/2011 3:50 pm
UPC: 0123456789889
Category: Internal Hard Drive
Size: 1.5TB
Speed: 5400 RPM

[2TB 7200 RPM external hard drive formatted in NFTS](#)
Created: 23/9/2011 3:35 pm Modified: 23/9/2011 3:50 pm
UPC: 987654321111
Category: External Hard Drive
Size: 2TB
Speed: 7200 RPM

The user clicks on an item in the "Recent Changes" list. This takes the user to the Item Details page.

F0S1

The screenshot shows a web-based application interface for managing item details. At the top center is the title "Item Details". Below it, the item name "2GB DDR3 RAM for Dell Inspiron 1520 laptop" is displayed. A timestamp "Created 29/9/2011 3:20 pm" is shown above the first data entry field. The form consists of several input fields with placeholder text: "UPC: 912837465555", "Category: RAM", "Size: 2GB", and "Manufacturer: Dell". Below these fields is a large, empty rectangular area labeled "Notes:" which occupies most of the page below the form.

The details page displays all of the stored information about the item and holds empty attribute/field spaces if the user wants to add more information.

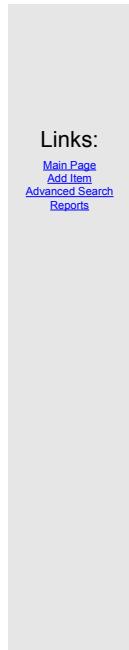
11.6 Edit Details of an Item

F0S0

This screenshot is identical to the one above, showing the "Item Details" page for the same item. It features the title, item name, creation timestamp, and the same set of filled-in and empty input fields for UPC, category, size, and manufacturer. The large "Notes:" area at the bottom is also present.

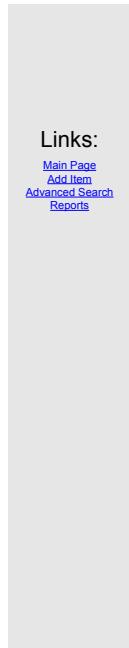
The user is at an item details page and clicks on the empty field that exists at the bottom of the list of filled out data.

F0S1



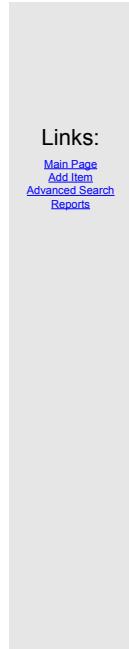
A dropdown box drops down and has the list of different attributes for RAM available. The user selects "speed."

F0S2



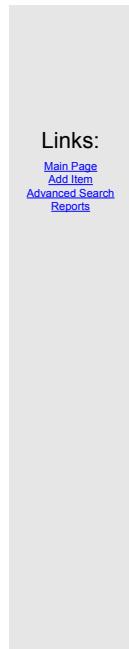
The dropdown collapses then fills in "speed" into the attribute field. The user then fills in the information for the "speed" attribute.

F0S3



The user's input, "DDR3" fills in the field.

F0S4



The user then clicks off of the editable sections of the item page and all of the fields go back to looking immutable.

12 Index and Glossary

Assigned to: Developer ultimately responsible for the implementation of a feature (5).

Context Flow Diagram: the highest level of the DFD; it shows the entirety of the system. The next level of specification is level 0, followed by level 1, then level 2, and so on (14).

Data Flow Diagram (DFD): A diagram that details the data and signals that are passed between different processes and subprocesses of the system. If a particular process is complex enough to warrant it, a separate diagram may be made that shows the subprocesses within that process, and if any of them is sufficiently complex, the repetition of the diagramming at each level can occur as much as is necessary to explain the system in enough detail (14).

Effort: Expectation of the resources and time consumed for a feature (5).

Feature: A system capability that fulfills a user need (5).

Post-condition: An expectation of the system's state after the events in a use case occur (7).

Pre-condition: An assumption about the state of a system before a use case's events are followed (7).

Priority: Description of how essential a feature is to the project (5).

Risk: Probability that a feature will instigate delays in the project (5).

Stability: Likelihood that the understanding of a feature will change (5).

Target Release: Expected release iteration of a testable feature (5).

Universal Product Code (UPC): a specific kind of barcode assign uniquely to each item in the server (5).

Use case: A description of the steps performed by a user and system that leads the user towards a useful outcome (6).

13 References

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