

Requirements Specification

Fabricating IAT Luminating Existing Thinking
(F.I.L.E.T.)

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F.I.L.E.T.

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1.1 Product Overview and Summary

Our client, Dr. Breimer, would like an easy way to create an IAT (Implicit Association Test) in an online environment in order to obtain data for research. An IAT is a tool that psychologists use to study peoples innate thoughts and opinions about particular groups of people or subjects by observing their reaction time to stimuli objects they are presented with. He wants to be able to easily create IATs by simply providing category names and stimuli objects. Once the test is created he can send out them to participants, and can view any individual's test results. He also needs to obtain more information about the person taking the test, so he would like us to use a survey tool to collect this information. FSH Tech will create this program, F.I.L.E.T., in order to create IATs, have participants take IAT, and save the information to a database, which Dr. Breimer can then access this information.

1.2 Development, Operating and Maintenance Environments

FSH Tech will be developing F.I.L.E.T. using the resources available in our software engineering lab. The list below will contain the equipment used to create our software and our team website as well as keep them maintained.

Server:

Web Server: Apache version 2.2.21

PHP version 5.2.17

MySQL 5.1.58-community log

Windows Machine:

Operating System: Microsoft Windows Vista Enterprise (32 bit) Service Pack 2

Hardware:

Processor: Intel Core 2 Duo, 2.93 GHz

Memory: 4.00 GB RAM

Software:

Microsoft Office 2007

Macromedia Dreamweaver, Fireworks

Internet Explorer 9, Mozilla Firefox 7.0.1, Google Chrome 15.0.874.102

Macintosh Machine:

Operating System: Apple Mac OS X Version 10.6.4

Model: iMac5

Processor: Intel Core2 Duo 2 GHz

Memory (RAM): 1.00 GB

1.3 External Interfaces and Data Flows

1.3.1 User Case Narrative

In order for our client, Dr. Breimer, to gather information for research, he would like to use IATs (Implicit Association Tests). IATs are psychological tests used to determine biases or prejudices by placing stimuli objects into one of four categories. With every IAT Dr. Breimer creates he also needs information to be gathered about the person taking it, meaning a survey would also have to be created for every test.

Administrator:

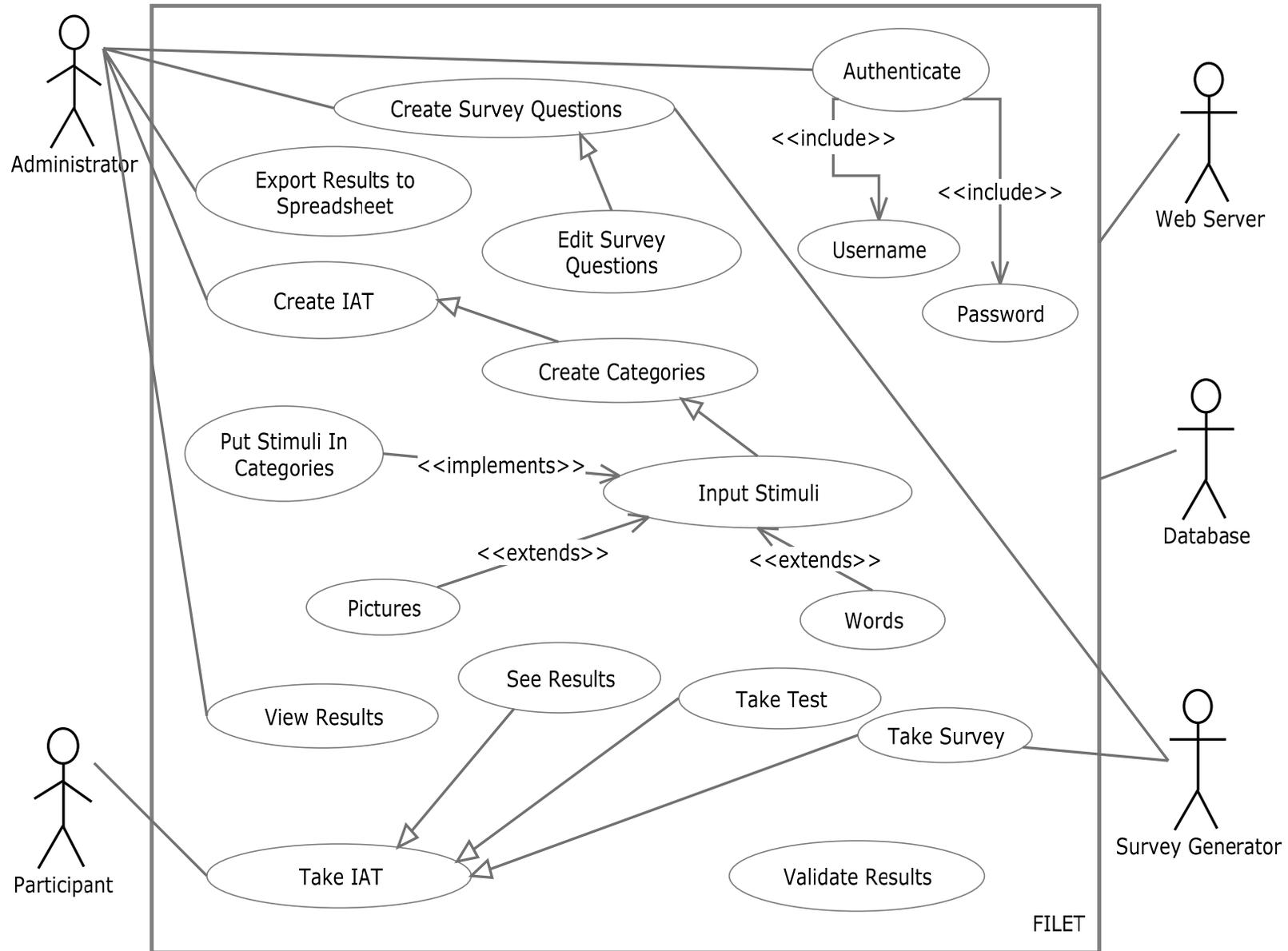
When the Administrator logs in to the system, the Administrator will be able to create new IATs as well as view the results of pre-existing IATs. If the Administrator wishes to create an IAT, the Administrator will first name the new IAT and select the four categories the stimuli are to be grouped into. The Administrator will then be able to select stimuli objects, either images or words that belong to each individual category. The Administrator will also be able to edit the survey to allow for focus on the data relevant to the selected IAT. Once the Administrator has finished selecting the categories, stimuli objects, and editing the survey, the Administrator will then be able to create and publish the IAT to the Internet. The IAT will be hosted online and a link will be generated in order to give the Administrator a means to share the IAT with Participants. In addition to creating IATs, the Administrator will also be able to view an organized collection of the resulting data which will be stored in the database. The database will contain all of the Participants' survey data as well as the results of every IAT that has been created and published, which the Administrator can explore individually. The Administrator may export the results of both the survey and IAT to a spreadsheet for further analysis.

Participant:

Anybody who is given the link to one of the published IATs may choose to participate. The Participant will first be taken to the survey in their web browser before proceeding to the IAT. The survey will contain information pertinent to the IAT and this information will be important when viewing the end results. Once all the mandatory questions have been answered on the survey, the IAT page will be loaded. The Participant will be shown an introductory screen explaining the test, and introducing the four categories and stimuli objects that will follow. The Participant will need to press the E and I keys on their keyboard to categorize stimuli objects left or right to the correct categories. Once the Participant presses the space bar, the test will begin with the first of seven blocks, or sections of the test. Each block is completed by the same method of categorization; however the categories will be paired differently in each block. A screen similar to the introductory screen will be shown between each block, and the Participant will start the next block by pressing the space bar once again. Once all seven blocks are completed, the Participant will be shown their results, if they are available for the test they have taken.

1.3.2 UML Use Case Diagram

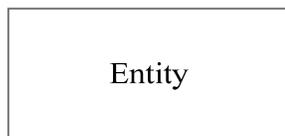
F.I.L.E.T by FSH Tech



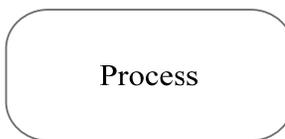
1.3.3 Data Flow Diagram

What will follow is the legend for the Data Flow Diagram (diagrams which show the way data will move throughout our system at different levels of abstraction), the Context Diagram, Level 0 Diagram, and a single Level 1 Diagram

F.I.L.E.T. by FSH Tech Data Flow Diagram Legend



External or Internal Entities, which are either sinks for or sources of data



A Process that manipulates and passes on data in some way from or to Entities, other Processes, or a Datastore

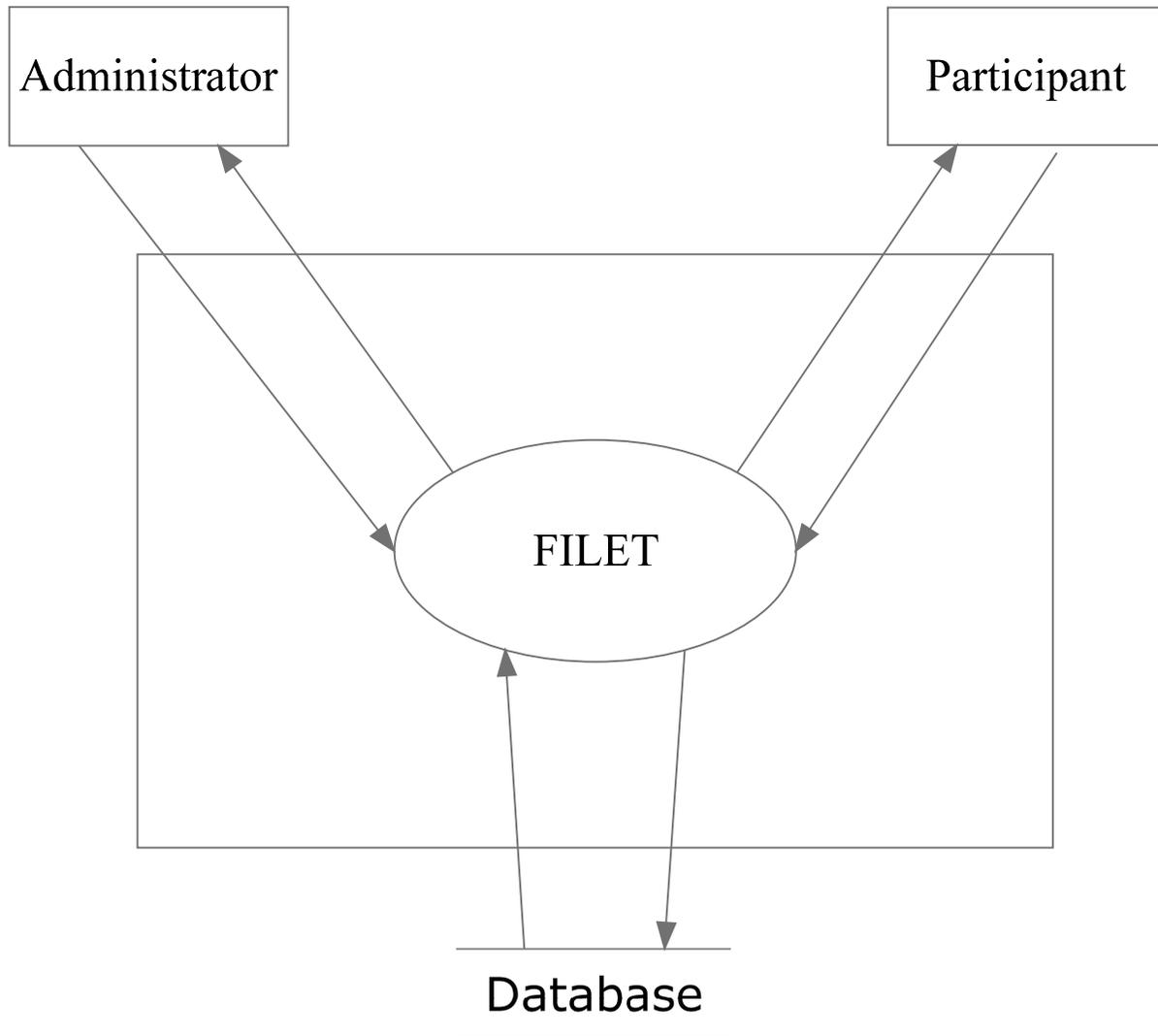


Datastore which represents a place where data is received and held, such as a database

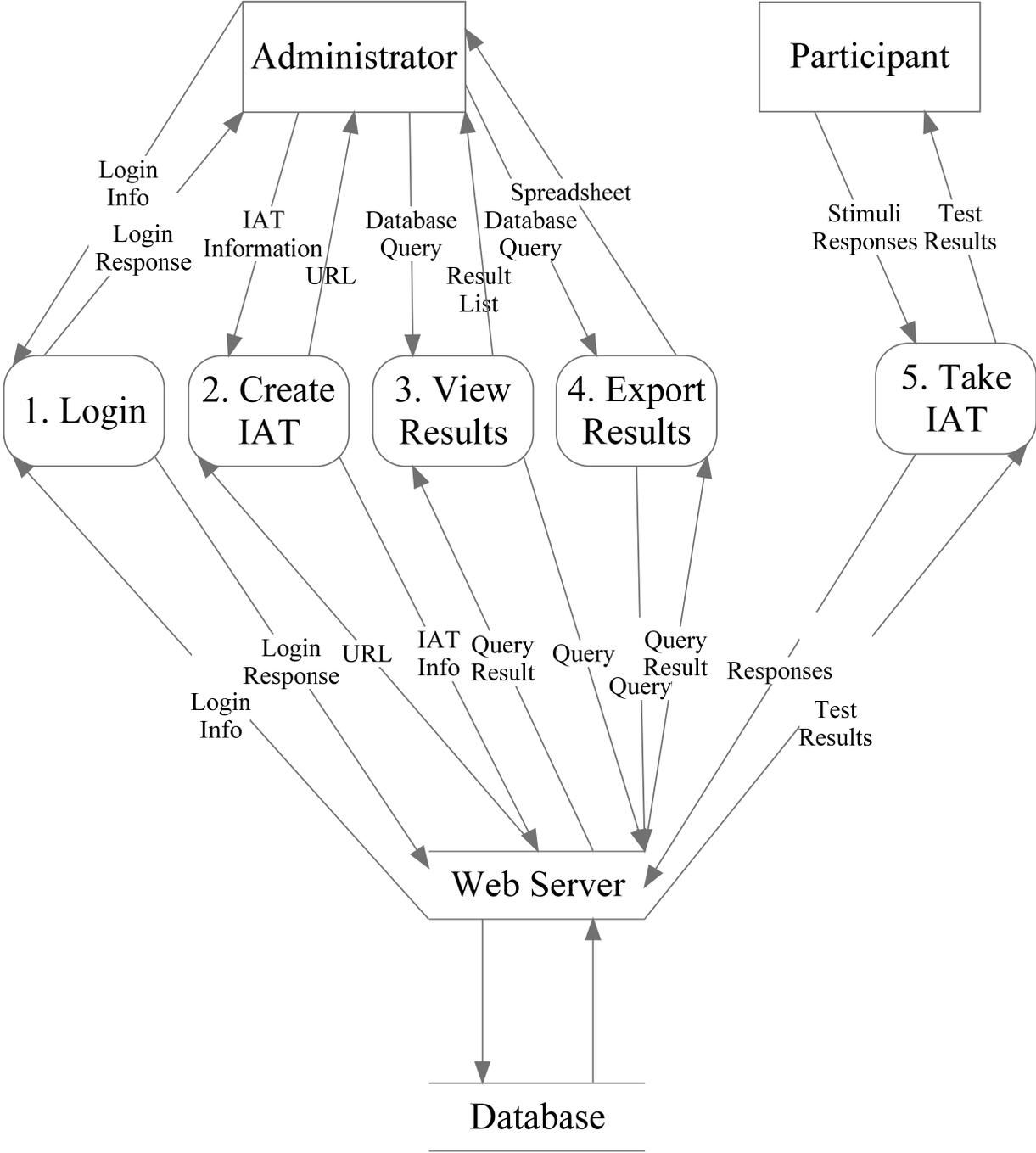


Data flow between Entities, Processes, and Datastores

FILET by FSH Tech Context Diagram

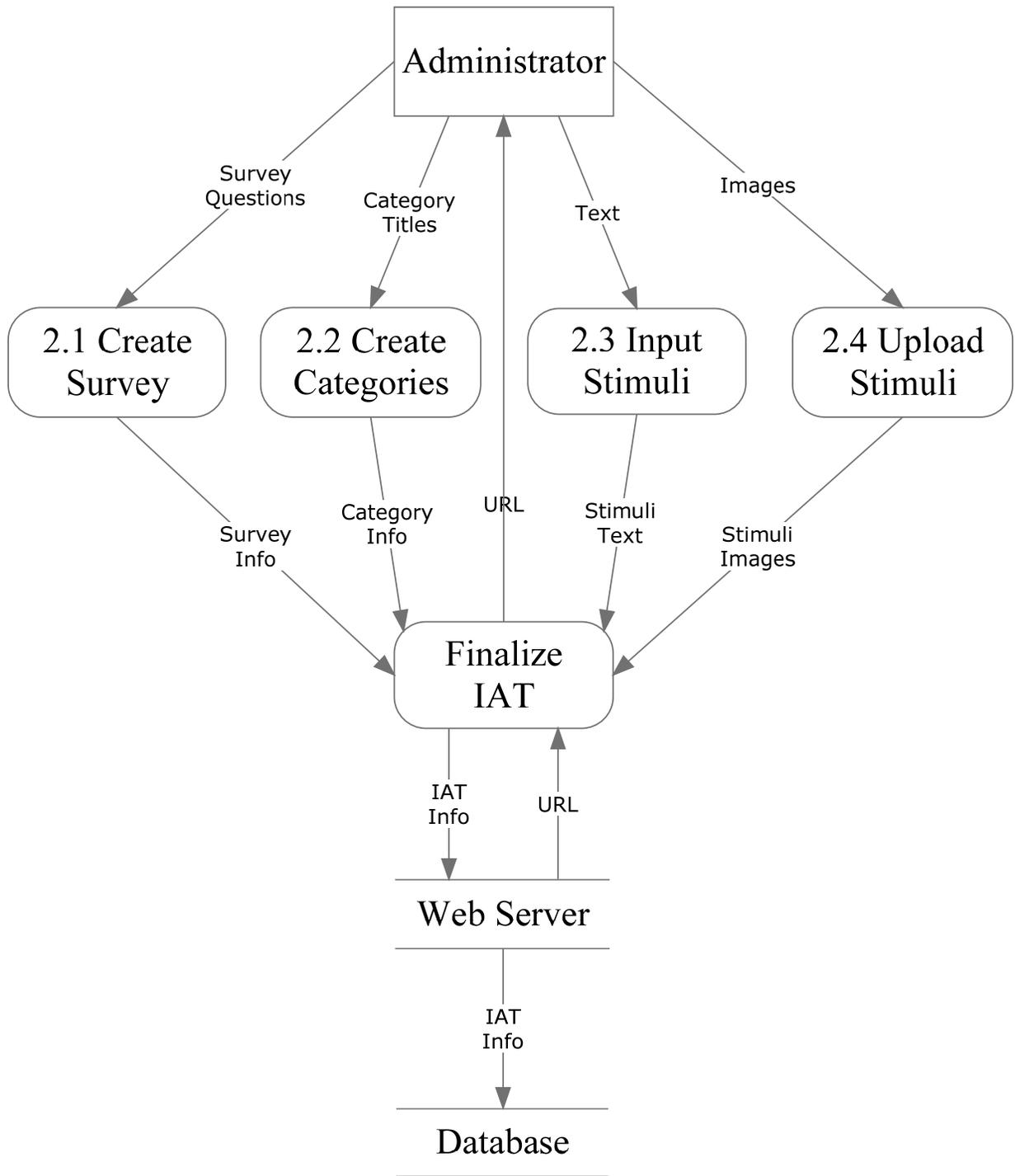


FILET by FSH Tech Level 0



FILET by FSH Tech

Level 1: Create IAT



1.4 Functional Requirements Inventory

F.I.L.E.T. will be tested across the browsers listed among our resources to ensure its functionality up to the listed versions of each browser. F.I.L.E.T. will have 2 user types: an Administrator and a Participant. The functional requirements will be grouped by user type.

Participant

- Will be able to follow a link to begin taking an IAT
- Will be able to take a survey
 - Will be able to omit optional questions
- Will be able to take the IAT
 - Will be able to categorize stimuli objects
- Will be able to see the results if they are available

Administrator

- Will be able to authenticate
 - Will be able to enter username and password
- Will be able to create an IAT
 - Will be able to input category titles
 - Will be able to put image or text stimuli into categories.
 - Will be able to select whether results are shown or not
- Will be able to view IAT results
 - Will be able to view results for specific users
- Will be able to export IAT results to a spreadsheet
- Will be able to create survey questions
 - Will be able to select questions necessary for completing survey
- Will be able to edit survey questions
- Will be able to view survey results
 - Will be able to view results for specific users

1.5 Performance Requirements

F.I.L.E.T. will be a web based interface that will work on most web browsers with a JavaScript interface such as Internet Explorer 8 and 9, Firefox, Safari, and Google Chrome. The program will have to run on the client side of the connection and not the server side to keep it running fast and accurate. The IAT must be implemented through JavaScript so it may be run on the client side to precisely measure the timing of the Participant's responses.

1.6 Exception Handling

- If either the connection is broken during the test, or the Participant closes the window, the results will not be recorded
- If the Participant fails to fill out necessary survey questions, they will not be able to proceed to the test and be notified of the blank questions.
- If the Participant hits foreign keys during the test, they will be notified so they may find the correct keys
- If the Participant's response times are either too slow or too fast, their results will not be recorded

- If the Administrator uses an incorrect username and password combination, he will be notified, and not allowed to proceed
- If the Administrator fails to name an IAT, he will not be able to proceed to selecting category titles, and will be notified
- If the Administrator creates an IAT with the same name as a previously created one, he will be able to overwrite the old IAT, but will be prompted to first
- If the Administrator fails to input four, unique category titles, he will not be able to proceed to inputting stimuli
- If the Administrator attempts to upload an unexpected file type instead of an image, he will be notified of the error and the file will not be uploaded
- If the Administrator attempts to create an IAT with no stimuli objects, the IAT will not be hosted and he will notified
- If there is a loss of connection while attempting to create the IAT, the Administrator will be notified
- If the Administrator attempts to view the results of a test that has not yet been taken, he will be notified that there is no data
- If the Administrator attempts to export the results of a test that has not yet been taken, he will be notified that there is no data, and a spreadsheet will not be generated.

1.7 Early Subsets and Implementation Priorities

The critical components of F.I.L.E.T. are:

- The ability of the Administrator to create IATs
- The ability of the Participants to take IATs once they are online
- The ability of the Administrator to see results of the participants

1.8 Foreseeable Modifications and Enhancements

At this time, modifications to the Administrator's interaction with F.I.L.E.T. include being able to easily edit and delete IATs, as well as more control over which data is viewed from either surveys or IATs. Internally, an improvement to F.I.L.E.T. would be the ability to detect Participants who have figured out how the test is judged while taking it, so their results may be thrown out. As of now, no enhancements to the IATs themselves are foreseeable.

1.9 Acceptance Criteria

F.I.L.E.T. will meet all the Functional Requirements listed in the Functional Requirements Inventory section of this document, as well as pass the different levels of testing which will be administered throughout development. Testing will take place after the completion of our Detailed Design, which will include a full test plan.

1.10 Testing Requirements

All of the exceptions outlined in the Exception Handling section of this document will be tested to insure that the system can handle them. Likewise, once IATs are able to be taken, they will be tested on multiple Internet browsers to ensure that the majority of Participants will be able to take IATs easily.

1.11 Glossary of Terms

C++ - (Pronounced "C Plus Plus) is a compiled general-purpose programming language regarded as a middle-level language.

Classic Waterfall Model- A basic software development strategy that clearly labels each phase of the software engineering process. The strategy follows consecutively the following steps: Requirements Specification, Design, Construction, Verification, and Maintenance.

CSS - (Cascading Style Sheets) are used to describe a specific style for a web page or set of pages.

Gantt Chart – A type of bar chart that illustrates a project schedule. This chart illustrates the start and finish dates of the terminal elements and summary elements of a project.

HTML - (HyperText Markup Language) is a scripting language used to design the structural layout of a website.

IAT - (Implicit Association Test) measures within a social psychology design to detect the strength of a person's automatic association between mental representations of objects (concepts) in memory.

JavaScript - An object-oriented scripting language used to enable programmatic access to objects within both the client application and other applications.

MySQL - An open source relational database management system.

PHP - (PHP Hypertext Preprocessor) a widely-use general-purpose scripting language that is especially well-suited for web development and can be embedded into HTML.

XHTML – (Extensible Hypertext Markup Language) is a reformation of HTML as an XML application.

XML- (Extensible Markup Language) A set of rules for encoding documents electronically.

1.12 Sources of Information

The information that was included in our Requirements Specification document was gathered from our weekly meetings with our client Dr. Eric Breimer. We also used tools such as Harvard's Project Implicit and previous Requirements Specification documents from previous Software Engineering groups as personal guidelines. We also were given structure and guidance from Dr. Timothy Lederman through class lectures and notes.

1.13 Project Timeline

