DYNASEARCH USER'S MANUAL

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1. INTRODUCTION

DynaSearch is a web based system that allows the end user to create and run a variety of user studies. The basic toolset supports the construction of studies designed to test how users collect and process information by recording the order and duration of mouse clicks on a set of pre-designed page elements, such as text boxes. In addition, DynaSearch supports more complex user studies by allowing end users to write and embedd their own custom experiements through the use of Java Applets, HTLM5, WebGL, Processing, and D3. The rest of this document will explain these tools in greater detail, but in order to provide you with an overall picture of the product, a simple example of what can be created is detailed below.

1.1 A Short Example

1.1.1 The Login Screen

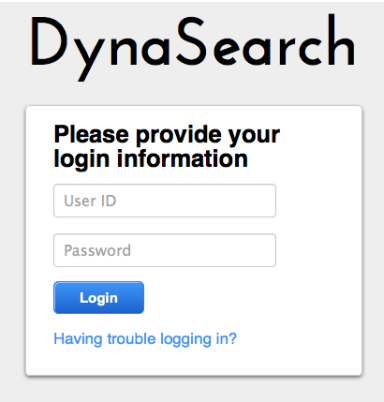


FIG. 1: Users will start an experiment by logging into the DynaSearch system through the login screen.

All users should be provided with a user name and password so that they may login to the system. User accounts can be created and edited within the Manage Participants window. The login screen is displayed in 1.

1.1.2 The Size Registration Screen

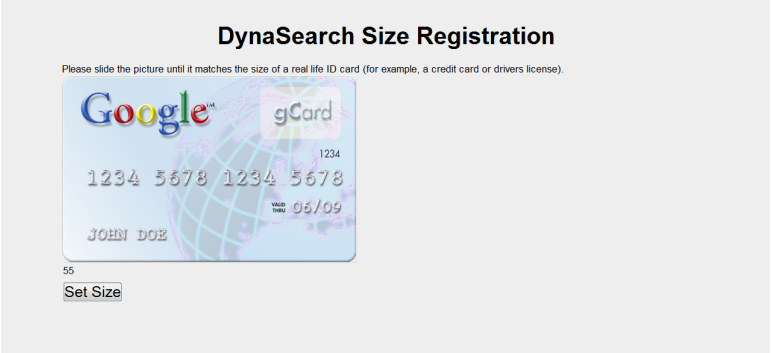


FIG. 2: Users must first register the size of their screen.

In order to ensure that all users see screen elements of the exact same size, regardless of screen size and resolution, a size registration may be required by an experiement. This is done by holding a physical credit card up to the screen and sliding the edges of the Google credit card image until it is the same size as the physical card. This screen is shown in Fig. 2.

1.1.3 The Instruction Screen

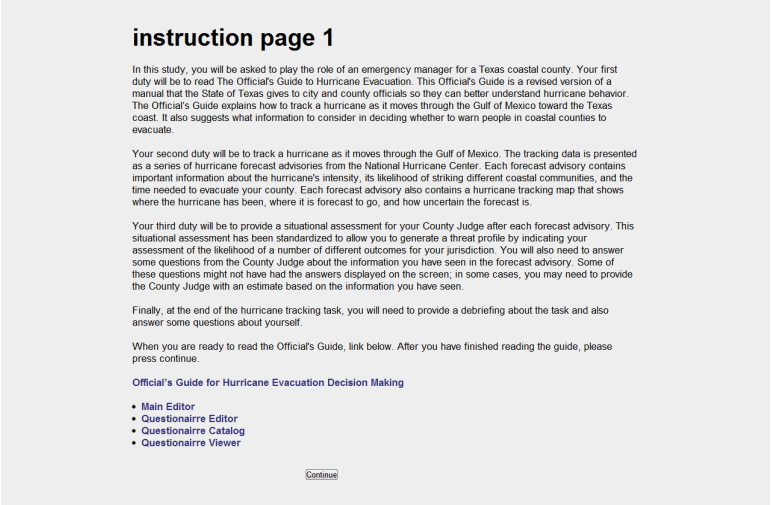


FIG. 3: The instruction screen displays information for the users.

Users can be supplied with supplemental information using the instruction screen. A sample instruction screen is displayed in Fig. 3. Instruction pages can be as simple as plain text. However, they are read as HTML files and can be expanded to include any valid HTML tags as well as script components.

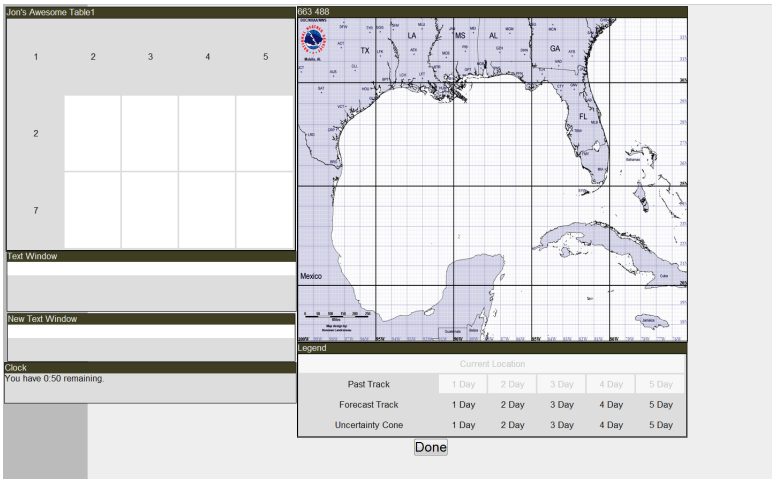


FIG. 4: The training screen records information based on user clicks.

1.1.4 The Training Screen

The training screen records the order and duration of participant clicks. The participant clicks on the screen in order to uncover certain pieces of information, whether it is a cell of a table or information drawn over an image. A sample training screen is displayed in Fig. 4. Training screens can include a timer which will force participants to move to the next portion of the experiment after a defined period of time. Training screens also support embedded Java applets, HTML 5 pages that utilize WebGL, Processing, and D3. This will be explained in greater detail in the section of the manual that covers building training pages.

1.1.5 The Survey Screen

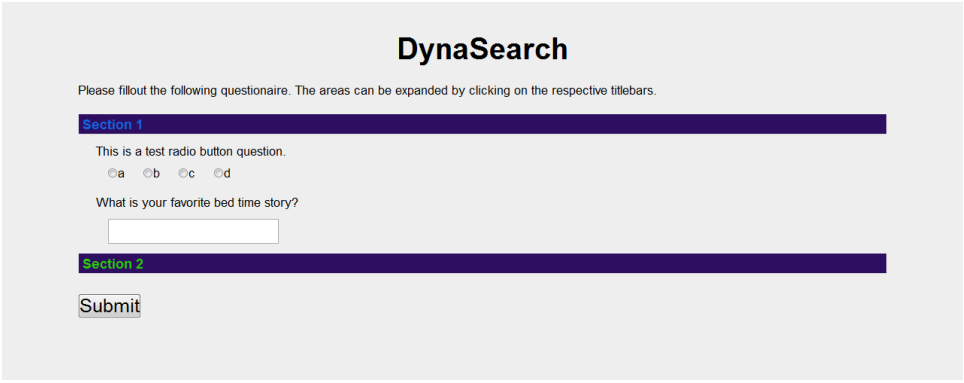


FIG. 5: The survey screen allows the users to answer specific questions.

The survey screen allows the participants to respond to specific questions designed by the end user. There are currently two question types available for use. These are radio button questions and free response questions. A sample survey screen is displayed in Fig. 5.

2. ADMINISTRATIVE TOOLS

2.1 A Quick Overview

From this point forward, ”you” will refer to the individual creating the experiments, and ”user” refers to the research participants.

The DynaSearch system allows for the creation of user studies that can be composed of three different types of pages. The first is the instruction page. Here, basic HTML is displayed that can be used to convey specific instructions to users or as a means of supplying them with supplemental information. The second is the training page. This page can be composed of text boxes, tables, and images that are all covered on the page's initial load. In order for users to reveal the covered information and interact with any of these elements, they must click on it. The order and duration of these clicks is tracked by a database typically hosted on the web server. The training page can also house custom applets that offer a wider variety of interactions. The last type of page is a questionnaire which gives users the opportunity to provide feedback. Additionally, it can serve as a way to test the users on previously displayed information.

Accounts with administrator access are given access to the **Administrator's Page** where links to the different editors are listed. Instruction pages, training pages, and questionnaire pages can be created in any order. The experiment creation tool defines an experiement by linking pages together, and should not be used until all of the pages for a given experiment have been completed.

In addition to these editors, other pages have been provided to manage the assests used in an experiment, such as images or scripts, as well as to create users and access the data resulting from the experiments. Assets used in the experienments can be managed through the Asset Manager. The creation and editing of participant accounts can be completed through the **Participant Manager**, while their experimental results can be accessed through the **View Results** page.

The remainder of this section will explain the use and operation of these editors and pages. For more information regarding the database, please refer to Appendix A. For more information on the file system, please see Appendix B.

2.1.1 Instruction Pages

To create an instruction page, just create a text file that contains the information desired and upload it using the **Asset Manager**. Because this data will be inserted between the $<$ `body` $>$ tags of the template instruction page, any additional HTML tags and scripting maybe used as desired. These files will automatically be available from the **Experiment Editor** editor page.

2.1.2 Training Pages

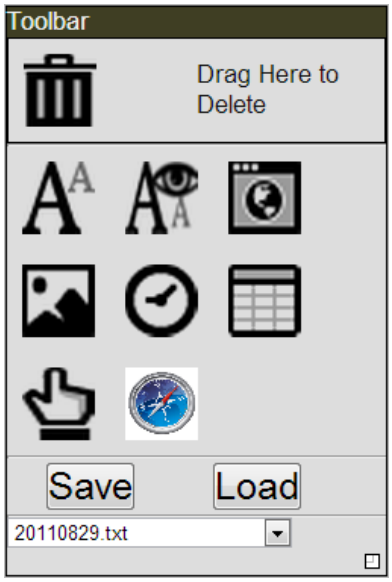


FIG. 6: The icons represent the trash bin, text window, visible text window, applet window, image window, clock, table window, interactive table window, and legend window respectively.

To access the training page, select the **Training Page Editor** link from the **Administrator's Page**. This will take you to a blank training editor page with the toolbar window located in the upper left window. With the exception of the trash can, each of the icons on the toolbar allow for the creation of a different window. The toolbar window is displayed in Figure 6. The toolbar window and any other created window can be moved by clicking and dragging on the title handle of the window.

The Trash Bin The Trash Bin allows you to delete unwanted windows. Simply click on the title bar of the window you wish to remove, and drag it over the trash can. When you release it, it will be deleted.

The Text Window The Text Window is used to display paragraphs or sections of text to the user. These will be hidden during a user study until the user clicks on the section containing the text. Both the title of the window and the text itself can be modified by clicking on the blue icon in the top right corner of the window. It can be resized by clicking and dragging on the white box in the bottom right corner of the window.

The Visible Text Window The Visible Text Window is similar to the Text Window, with the exception that the text will always be visible to users. The contents will not be hidden during the course of a user study.

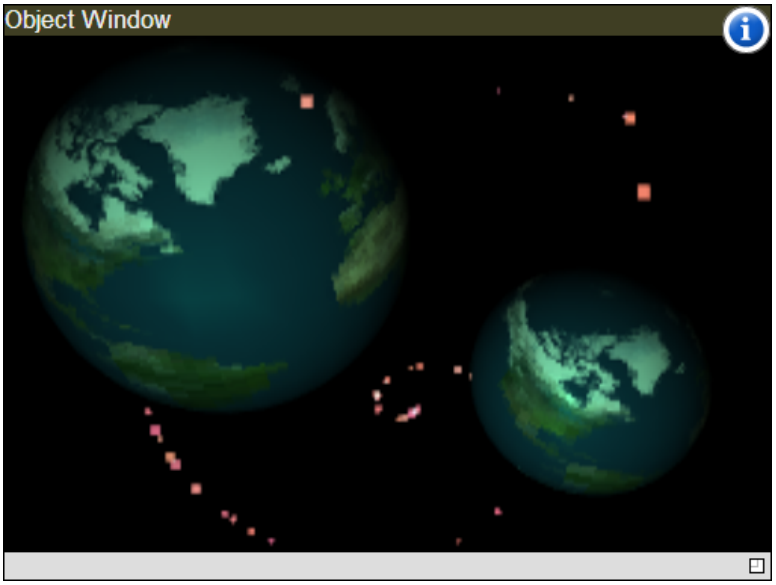
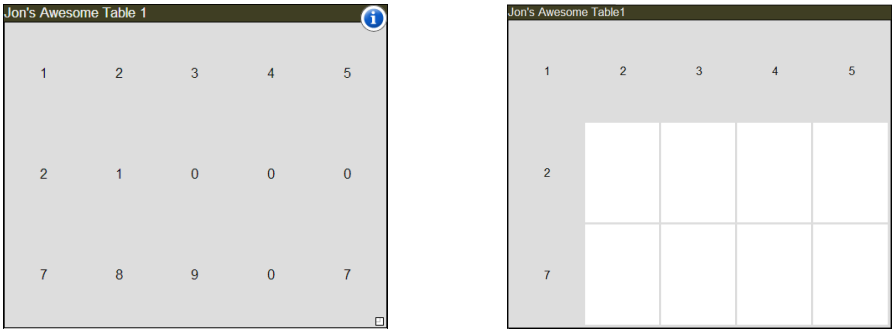


FIG. 7: The Applet Window will let you embed various scripts and applets to extend the user study.

The Applet Window The Applet Window lets you embed Java applets as well as HTML5 and JavaScript code that can include WebGL, Processing, or D3 scripts into the Training Page. To assign an applet, HTML5, or JavaScript file to the Applet Window, click on the blue icon in the top right corner of the window and select the desired asset from the displayed dropdown menu. Make sure that the asset has been uploaded using the **Asset Manager** before trying to load it into a applet object. An example of the Applet Window can be seen in 7.

The Image Window The Image Window allows you to display a static image. The chosen image will always be displayed unless a Legend Window is associated with with it. Please see the section covering the Legend Window for more information. To select the image to be displayed, click on the blue icon in the top right corner of the window and and select the desired asset from the displayed dropdown menu. Make sure that the asset has been uploaded using the **Asset Manager** before trying to load it into a image object.

The Clock Window The clock window determines how long a page will be available to a user. By clicking on the blue icon, you can specify the number of minutes that each user should receive. The default time is 20 minutes. If no clock window is created, then the window will be available to the user until they click on the Done button. Please note that the clock window will not actually be displayed while the experiment is being run.



(1) In training page editor **(2)** Durring user study

FIG. 8: Table Window

The Interactive Table Window The Interactive Table Window displays information in a table format, as demonstrated in 8. The first row and column will always be visible, while the other fields will be covered by a white box. When clicked, the box will become transparent, allowing users to see the data values underneath. Clicking on the blue icon will allow the user to change both the table name and the file in which the table data is stored. These text files are uploaded using the **Asset Manager**.

When constructing the table files, columns are separated by commas, and the rows are separated by new lines. To resize the table, click and drag on the white box in the bottom right corner of the table window. You must resize the table manually in order to test that the information contained is displayed correctly.

In order to distinguish which table a user is clicking on from the entries in the database, the tables in an experiment should have unique table names.

The Table Window The Table Window behaves in the same manner as the Interactive Table Window with the exception that the data is visible at all times during the course of a user study. Because of this, no click data is recorded for this type of table.

Loading A Training Page To load a previously saved training screen, pick the training file from the drop down menu that you wish to work with and hit the Load button. Note that to save any changes made to this training screen, you must hit the Save button before navigating away from the page.

Saving A Training Page The Save button will prompt you to enter a name to save the file as. The extension .txt will automatically be added to the name you supply, so it is not necessary to include that in the file name. For example, if you want the file name to be `test1.txt`, enter only `test1`.

2.1.3 Questionnaire Editor

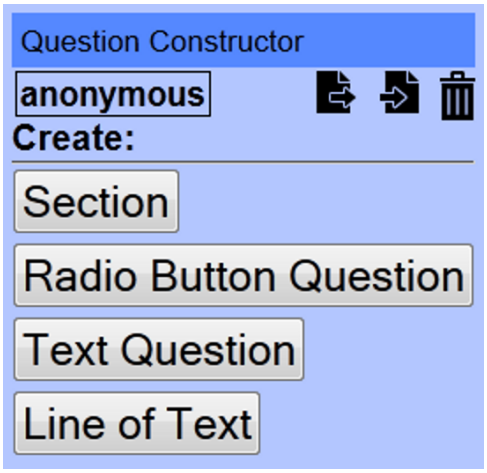


FIG. 9: Questionnaire Toolbar

The Questionnaire Editor allows you to create a questionnaire that can be taken by users as they progress through an experiment. There are four basic building blocks that can be incorporated into a questionnaire, all of which are accessed through the toolbar displayed in Fig. 9. In addition, the toolbar allows you to name, load, save, and clear the questionnaire currently being edited.

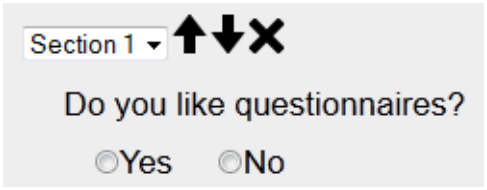


FIG. 10: Moving a Question

Questionnaires are built as a two tier hierarchy. The top teir of this hierarchy can be composed of any of the building blocks, while the second tier can be composed of a set of radio button questions, text questions, and text that are nested under each section. Sections are used to better organize questionnaires, and allow the users to control what questions are displayed at any time by expanding and collapsing the nested questions when a user clicks on the desired section's title bar.

Questionnaire elements can be placed as desired throughout the questionnaire by using the controls located above each element as shown in Fig. 10. To place an element within a specific section, select the desired section from the dropdown menu. Please note that sections cannot be embedded within other sections. To move a question or section up or down, use the up and down arrow buttons respectively. Note that if an element is within a section, the arrow keys will only move it within that section. If the element is not located within a section, then it will navigate through the top tier. To remove a question or section from the questionnaire completely, hit the **X** button. **Be aware that if you delete a section that contains other elements, those other elements will also be deleted.**

When a questionnaire is completed by a user, their responses are saved and can be accessed and viewed through the **View Results** option from the **Administrator's Page**.

Each of the building blocks and editing operations are described in greater detail below.

Section To create a section, hit the Section button from the Question Constructor toolbox and provide the desired name for the section at the given prompt. When both fields have been completed, you can insert the section into

the questionnaire by hitting the check mark button at the bottom of the prompt. Sections allow you to segement a questionnaire into pieces. When users are taking a questionnaire, these sections can be collapsed or expanded by clicking on the section's title bar. Sections are for orgazational purposes only and do not affect the user output in any way.

At this time, sections are not able to contain other sections. To remove or change the position of the radio button question, use the navigation controls located above the question as described above. **Be aware that if you delete a section that contains other elements, those other elements will also be deleted.**

Radio Button Question To create a radio button question, select the Radio Button Question button from the Question Constructor toolbox. DynaSearch will display a prompt for the question as well a text box for the first answer. As soon as a value is typed in an answer box, a new box will be created underneath it. In this way, the question can have as many choices as are needed. The final empty box will not be displayed to the user when they take the questionnaire. When all of the possible answers for the questions have been given, you can insert the question into the questionnaire by hitting the check mark button at the bottom of the prompt.

To remove or change the position of the radio button question after it has been inserted into the questionnaire, use the navigation controls located above the question as described above. Note that DynaSearch will record the index value of the choice selected by the user, not the value you enter.

Text Question To create a text question, select the Text Question button from the Question Constructor toolbox. DynaSearch will display a prompt for the question as well as the max number of characters that should be allowed for the response. For a free response question, use the number zero. If the number of characters given is too large for the width of the screen, the text box created will have a tab on the lower right corner that can be dragged to increase its size. When both fields have been completed, you can insert the question into the questionnaire by hitting the check mark button at the bottom of the prompt.

To remove or change the position of the text question after it has been inserted into the questionnaire, use the navigation controls located above the question as described above.

Line of Text The Line of Text option allows you to provide users with additional instructions or information. After selecting this option and hitting the Next button, DynaSearch will prompt you to enter in the text that should be displayed. To add the information to the page, click the Next button again. To remove a line of text, simply click on the red minus symbol above the upper right corner of the element.

Save To save a questionnaire, hit the save button located at the top of the Question Constructor toolbox. The icon for the save button resembles a piece of paper with the arrow pointing into it. DynaSearch will save the questionnaire using the name given in the box at the top left corner of the toolbox. The default name for a questionnaire is **anonymous**. Please be aware that currently, DynaSearch will overwrite previous questionnaires of the same name without warning.

Load To load a questionnaire, hit the load button located at the top of the Question Constructor toolbox. The icon for the load button resembles a piece of paper with the arrow leaving it. DynaSearch will then display a prompt that allows you to select the questionnaire you wish to load from a dropdown box. Load the selected questionnaire by hitting the button represented by the check mark.

Clear The clear button allows you to clear the current questionnaire being edited. The icon for the clear button resembles a trash can and is located at the top of the Question Contrstructor toolbox. Please note that DynaSearch will **not** automatically save any work done before clearning the questionnaire from the editor.

2.1.4 Experiment Editor

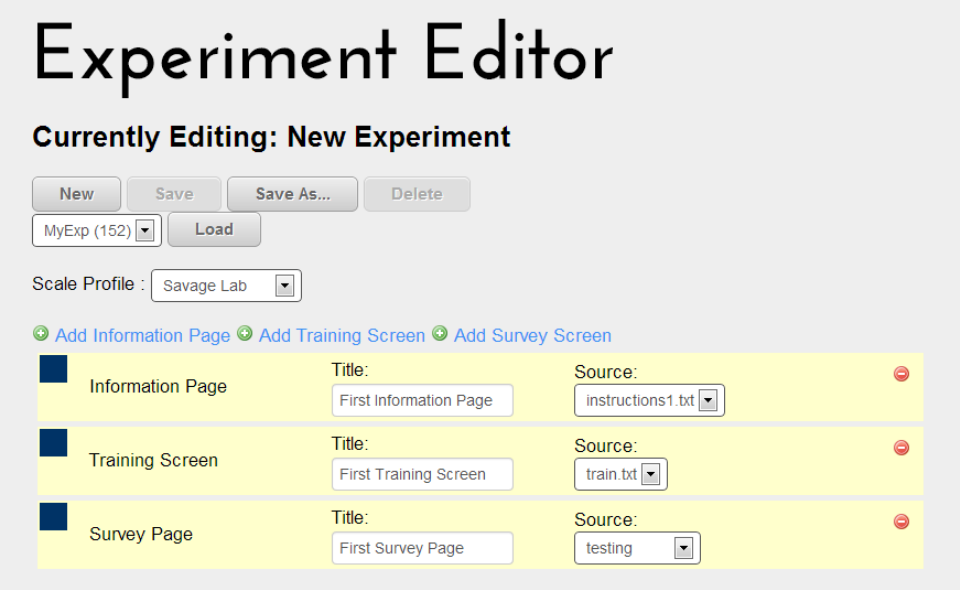


FIG. 11: Experiment Editor Interface

The **Experiment Editor** allows you to combine any number of instruction pages, training pages, and questionnaires into a single experiment. The interface shown in 11 will allow you to select and assemble the various elements required. The experiment currently being edited is listed at the top following the line, "Currently Editing:". When the page first loads, a new experiment entitled, "New Experiment" is created.

The remaining elements of the page are described in greater detail below.

New To start building a new experiment, click on the **New** button. Doing this will clear any work that has been done, so it is important to save previous work before continuing.

Save To save an experiment that you have been working on, click on the **Save** button. How the experiements are saved is covered in greater detail in Apendix B.

Save As To save the experiment currently being edited as a different experiment, click on the **Save As** button. You will be prompted to give a name for the experiement. Please keep in mind that currently, DynaSearch does not check to determine if an experiment already exists with a name with you click on the **Save As** button. This means that it is entirely possible to overwrite a prexisting experiment by entering it's name as the name to save the current experiment under.

Load Experiment To load a previously saved experiment, select the experiment that you wish to load from the drop down menu and then click on the **Load** button. How experiments are saved is explained in greater detail in **Appendix B**.

Scale Profile Scale profiles adjust how the elements are scaled during an experiment. If an experiement requires that users go through the size registration process to determine the scale needed, select Custom Scaling from the scale profile menu dropdown. Otherwise, select a specific profile from the list as needed by the experiement. This will generaly want to match the profile used by the administrator when they were creating the experiment.

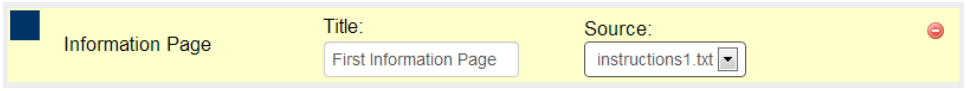


FIG. 12: Information Page Inserted

Add Information Page

The **Add Information Page** link will allow you to insert a new information page into the current experiment. When this link is clicked, a new information page label is inserted into the current list of pages, as is shown in 12. To assign a title to the page, click on the box labed "Title" and insert the desired text. The drop down box lists the current files that can be used as instruction pages. The file used will be the one currently selected from the drop down menu.

To change the sequence of the pages, click and drag the blue box on the left hand side of a page label up or down to slide it into the desired location. To remove a page from your list of pages, select the red minus sign on the right hand side of its label.

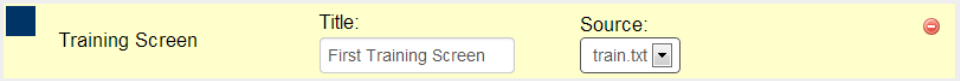


FIG. 13: Training Page Inserted

Add Training Page The **Add Training Page** link will allow you to insert a new training page into the current experiment. When this button is clicked, a new training page is inserted into the current list of pages, as is shown in 13. To assign a title to the page, click on the box labed "Title" and insert the desired text. The drop down box lists the current training pages that are available. The training page currently selected in the drop down box will be the one used during the experiement.

To change the sequence of a page, click and drag the blue box on the left hand side of the page label up or down to slide it into the desired location. To remove a page from your list of pages, select the red minus sign on the right hand side of its label.

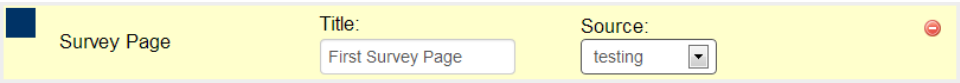


FIG. 14: Survey Page Inserted

Add Survey Page The **Add Survey Page** link will allow you to insert a new questionnaire into the current experiment. When this button is clicked, a new questionnaire page is inserted into the current list of pages, as is shown in Fig. 14. To assign a title to the page, click on the box labed "Title" and insert the desired text. The drop down box lists the current questionnaires that are available. The questionnaire currently selected in the drop down box will be the one used during the experiement.

To change the sequence of a page, click and drag the blue box on the left hand side of the page label up or down to slide it into the desired location. To remove a page from your list of pages, select the red minus sign on the right hand side of its label.

2.1.5 Asset Manager

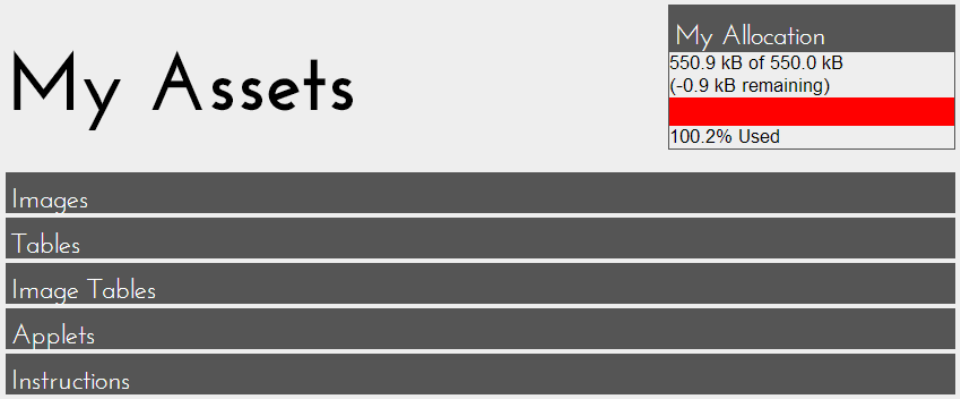


FIG. 15: Asset Manager

The asset manager allows you to upload images, table files, applets, and scripted components to your training pages. Please note that applets and script components are grouped together. The available assets for each type can be viewed from the dropdown menu underneath the corresponding category. To manage a particular asset type, click on the section header for that type, and use the interface displayed. The interface for each asset type is explained in greater detail below in the sections corresponding to each type.

Each administrator is allocated a certain amount of storage space to upload assets. How much storage they get is dictated by the database, as explained in **Appendix A**. When an administrator has reached their storage limits, they will be unable to load more assets until they remove other assets, or their capacity is increased by the system administrator.

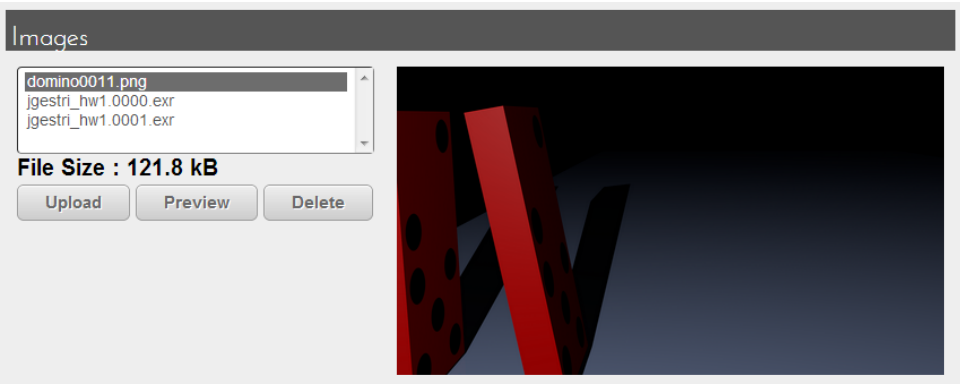


FIG. 16: Managing Image Assets

Images Figure 16 shows the interface used to upload and manage image assets. Images that are currently available on the system are listed in the text box on the left. To upload an imange, click on the button labeled **Upload** and select the file that you wish to upload. It is possible to preview these images by selecting the desired image and clicking on the button labeled, **Preview**. The image will be displayed in the window on the right side of the interface. To remove an asset from the list, select the asset and click on the button labeled **Delete**.

Dynasearch supports most major image formats.

Tables

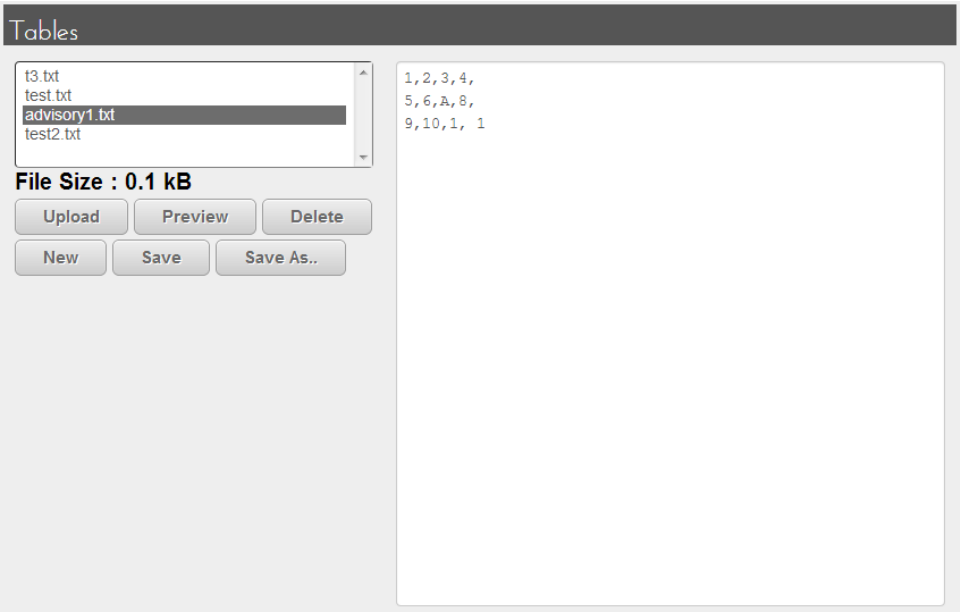


FIG. 17: Managing Table Assets

The tables are just text files that are formatted so that columns are separated by commas and the rows are separated by new lines. The interface to interact with table assets is show in Figure 17. Tables that are currently available on the system are listed in the text box on the left. To upload a prexisting table file, click the button labeled **Upload** and select the desired file. To view the contents of a table file, click on the desired file from the list on the left and click on the button labeled **Preview**. The file will be loaded in the text editor to the right in the interface. To remove an asset from the list, select the asset and click on the button labeled **Delete**.

It is possible to edit and save table assets directly. Clicking on the button labeled **New** will completely clear the text editor on the right. Note that any changes given in the text editor will be lost when the **New** button is selected. To save the contents of a file that have been edited, click on the button labeled **Save**. To save the contents of the editor as a new table asset, click on the button marked **Save As** and enter the desired name to save the asset as.

Applets

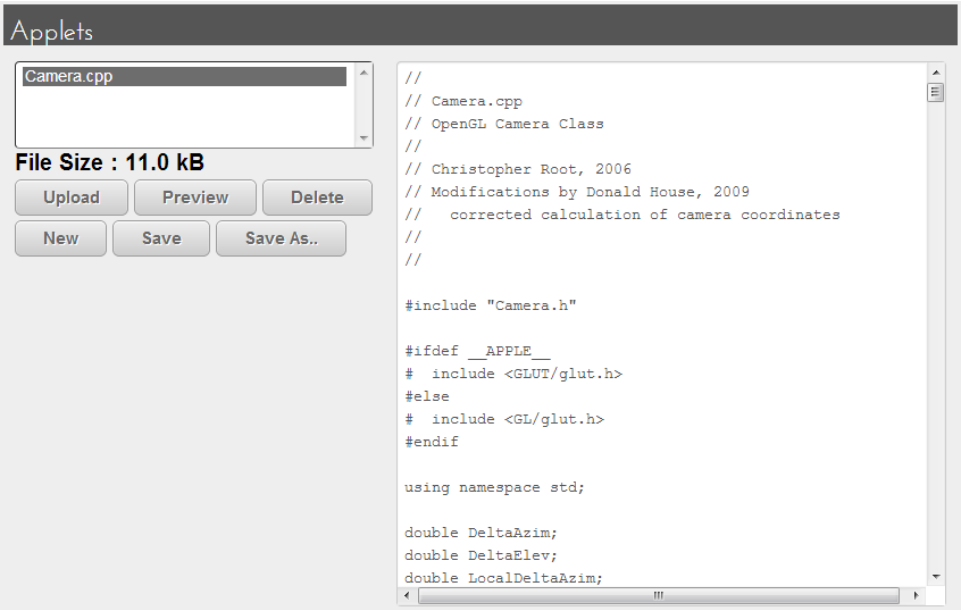


FIG. 18: Managing Applet and Script Assets

Applets allow for a tremendous degree of flexibility when designing the training page at the cost of an additional development burden on the administrator. With them, almost any kind of interaction can be built and incorperated into experiments through the training page. Currently, applets can be Java Applets, or HTML 5 code that embeds WebGL, Processing, or D3.

The interface to interact with applet assets is show in Figure 18. Applets and scripts that are currently available on the system are listed in the text box on the left. To upload a prexisting applet or script into the editor, click the button labeled **Upload** and select the desired file. To view the contents of an asset file, click on the desired file from the list on the left and click on the button labeled **Preview**. The file will be loaded in the text editor to the right in the interface. To remove an asset from the list, select the asset and click on the button labeled **Delete**.

It is possible to edit and save applet and script assets directly. Clicking on the button labeled **New** will completely clear the text editor on the right. Note that any changes given in the text editor will be lost when the **New** button is selected. To save the contents of a file that have been edited, click on the button labeled **Save**. To save the contents of the editor as a new applet or script asset, click on the button marked **Save As** and enter the desired name to save the asset as.

Instructions

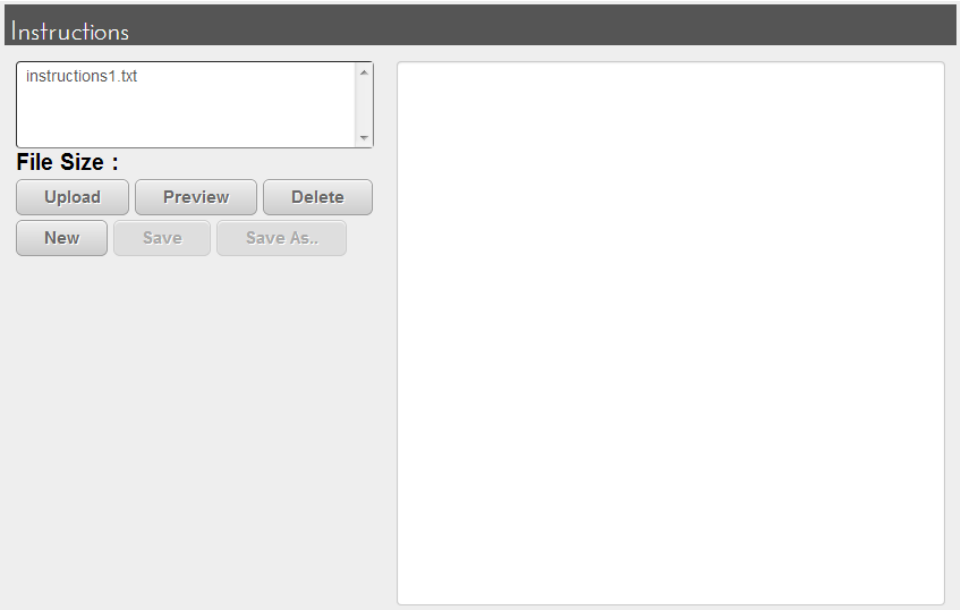


FIG. 19: Managing Instruction Assets

Instruction assets are text files that display information to the users during the course of an experiment. These files are loaded directly between the < body > tags of an instruction page and can employ HTML 5 as well as scripting.

The interface to interact with instruction assets is show in Figure 19. Instructions that are currently available on the system are listed in the text box on the left. To upload a prexisting instruction file, click the button labeled **Upload** and select the desired file. To view the contents of an instruction file, click on the desired file from the list on the left and click on the button labeled **Preview**. The file will be loaded in the text editor to the right in the interface. To remove an instruction asset from the list, select the asset and click on the button labeled **Delete**.

It is possible to edit and save instructions assets directly. Clicking on the button labeled **New** will completely clear the text editor on the right. Note that any changes given in the text editor will be lost when the **New** button is selected. To save the contents of a file that have been edited, click on the button labeled **Save**. To save the contents of the editor as a new instruction asset, click on the button marked **Save As** and enter the desired name to save the asset as.

2.1.6 Manage Participants

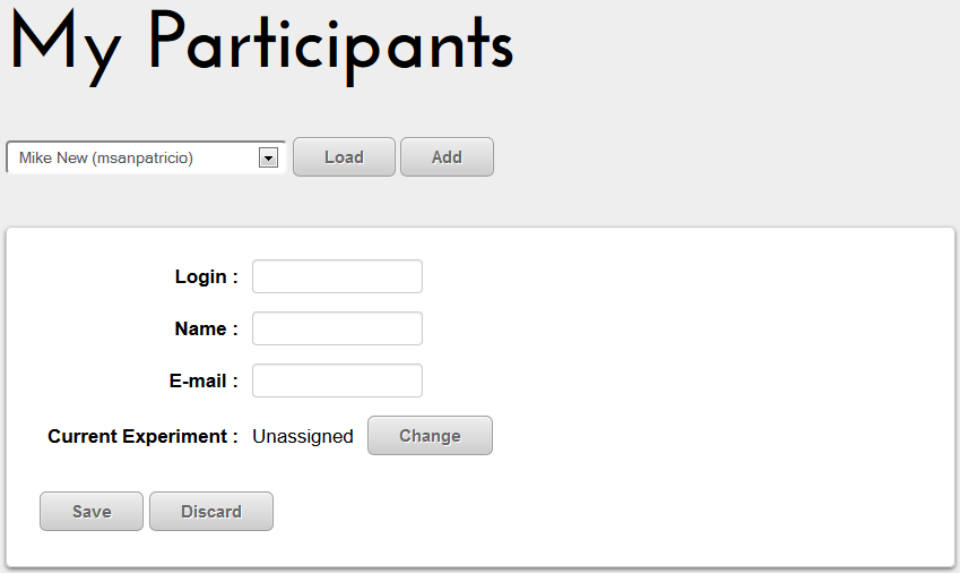


FIG. 20: Participant Manager

The participant manager allows administrators the ability to create and modify users. Create a new user, click on the button labaled **Add**. A form to create a new user is shown as in Figure 20.

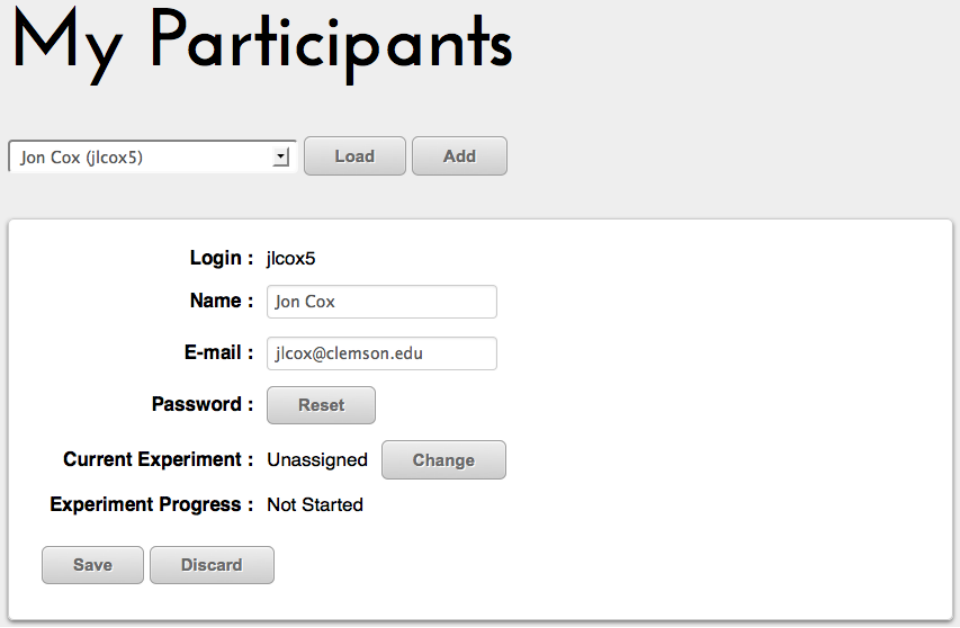


FIG. 21: Participant Manager

To modify an exisiting user select their name from the drop down list and click on the button labeled **load**. All of their information should be entered into the form, as show in Fig. 21. Please note that administrators will only be able to change users that they have created. This is important when mulitple administrators use the same system.

To assign a user to a specific experiment, click on the button labeled **Change** next to their currently listed experiement, and select the desired experiement from the popup that is displayed. The user's progress in the designated experiment is shown next to the label **Experiment Progress**. If a user's progress needs to be reset, check the box labeled **Reset Progress** and save the user's profile. To save any changes made to a user account, click on the button labeled **Save**

2.1.7 Results Manager

FIG. 22: Results Manager

The results for each study can be viewed and downloaded from the Results Manger, as shown in Fig. 22. To do this, select the desired user from the dropdown list and then hit the button labaled Load. Then, select the experiment you wish to review the results of and again hit the button labeled **Load**.

This will show a set of tables that display both the questionnaire data as well as the click data. To download this, choose whether to download the click data or the questionnaire results, select the format desired (currently only plain text is supported), and hit the button labeled **Download**. The details of the formats are specified below.

Plain Text

3. APPENDIX A: DATABASE INFORMATION

The tables listed below are used for the DynaSearch system. Any other tables you find in the database are legacy items from the original EMDSS application on which this website was based. The tables have no dependency on each other. Because of this, the resulting structure is very simple and easy to maintain. The tables are explained in greater detail below. The database used for DynaSearch is MySQL 5.1. The entire system was built using version 2.0 of wampServer.

3.1 sur clicks

The sur clicks table records the click information for each user on training pages. Each entry in the database represents a single click. Each individual field is explained below.

Dummy This is the primary key for the entry. It allows you to determine when an element was inserted into the table in relation to the other elements. This can be useful for reordering the elements after ordering them by another value.

UserName This is the user name of the individual that did the click.

SessionNumber This field was placed to keep track of users between separate experiments. It was determined that it would not be of much help for the currently designed experiments and so was never fully implemented. It has been left for possible future expansion of the software. For now it is assumed that each user only participates in one experiment once. If this is not the case, then their data will need to be cleared out of this table beforehand and their position number will need to be reset in t user.

ObjClicked This is the item that was clicked on a particular training page. Every objects name begins with "x toTrack". From there the naming convention differs, depending on the element in question. The details for each of the three element types are given below.

Tables The format for tables is: x toTrackTable "file name" "table name" "row" "column". So for example, if the file name was testFile.txt, the table name was Table 1, and the user clicked on the first row with the second column, then the entry would be x toTrackTable testFile.txt Table1 1 2. It is important to note that for any given experiment, there should be no two tables that share both the same file name and table name. Otherwise, it will be impossible to distinguish between them in the database.

Map Legends The format for map legends is: x toTrackTable mapLegend adv "advisory number" "row" "column". So for exam.ple, if the advisory number for the map on the training screen was five and the user clicked on the second row and the third column, then the entry would be x toTrackTable mapLegend adv 5 2 3). It is important to note that no two maps should have the same advisory number for a given experiment. Otherwise, it will be impossible to distinguish between them in the database.

Text Blocks The format for text blocks is: x toTrackText "window name". So for example, the the name of the text window was "Advisory Information", then the entry would be x toTrackText AdvisoryInformation. It is important to note that no two text blocks should have the same title throughout an experiment. Otherwise, it will be impossible to distinguish between them in the database.

ClickLength This gives how long the element was clicked in seconds.

ClickNumber This gives the order that an element was clicked on a specific training page. Ordering the elements by their Dummy value will return the sequence in which the elements of a single training page were accessed.

3.2 sur question

This table holds all of the questionnaires that have been created within DynaSearch. Everything in this database is handled internally, so it should almost never need to be accessed. It should be noted that once experiments are created, the information in the Value field is copied to a file in the file system. This is designed to protect individual experiments from issues that may occur with the database. The details of each field are given below.

id The id field serves as the primary key for an entry. It should never need to be referenced.

Name This is the name of the given questionnaire. It is what is displayed when trying to insert the questionnaire into different experiments. Each should be unique.

Value This is the HTML that makes up the questionnaire. It is stored in its basic format. If the questionnaire needs to be edited in any way after it is saved, it will have to be through this field, as there is currently no way to modify pre-existing surveys.

3.3 sur randquestion

This tables holds the questions that are created through the Questionnaire Catalog. They are single questions that maybe repeatedly inserted into a questionnaire. The details of each field are given below.

id The id field serves as the primary key for an entry. It should never need to be referenced.

Designator This is how the question is identified from the Questionnaire Editor. These should be unique values.

Value This is the HTML that makes up the question, and is stored in its basic format. If the question needs to be modified in anyway after it is saved, it will have to be through this field, as there is currently no way to change a question once it has been saved.

3.4 t experiments

The experiments table holds all of the information that is saved from the Experiment Editor. Short of removing experiments from the database, this table should rarely be referenced.

id The id field serves as the primary key for an entry. It should never need to be referenced.

ExperimentShortName The experiment short name is the name of the experiment that will be seen from the Experiment Editor. It will be the name given to the experiment on creation without any spaces or special characters.

ExperimentString This field contains a string which represent the experiment referenced. Most of it is stored in hexadecimal characters, and is therefore unreadable by itself. This informa.tion should only ever be accessed through the Experiment Editor. This string keeps track of the order of the pages, as well as the names of the files that correspond to each page in the experiments folder.

3.5 t user

This table holds all of the account information for a given user. A detailed look at the fields is given below.

User ID This is the identification that the user provides to the login screen in order to access the experiment.

County ID Lists the current county of the user. This field is currently not used.

UPassword The password for the user. Because the system was designed for academic purposes and no personal information is being stored, these passwords are not encrypted in any.way.

User Type This specifies the role of the account. An "A" designates the account as an adminis.trator. If this is true, they will automatically taken to the administrator page on login. A "U" designates the account as user. On login this individual will be taken to the experiment they are participating in. They should not have access to any of the editors or administrator page.

Name Real name of the user.

scaleW This field only applies to users. It is the width measurement that is recorded from the size registration page, and is used to ensure that every element on a training page is displayed with proper proportion, regardless of the monitors screen size or resolution.

scaleH This field only applies to users. It is the height measurement that is recorded from the size registration page, and is used to ensure that every element on a training page is displayed with proper proportion, regardless of the monitors screen size or resolution.

current position This field only applies to users. It determines where in an experiment the user should be, should they log out and try to log back in before the completion of the experiment. It should also prevent users from trying to back track in an experiment, though this behavior may vary from browser to browser.

experiment This field only applies to users. It determines which experiment will be displayed for a user when they log into the system. The value must be one of the Experiment Short Name entries listed in the t experiments table.

FORECAST Determines whether or not the user should be able to click on the row of forecast buttons in the map legend window. A value of 0 means that the user will not be able to access this information, while a value of 1 means that they will.

PAST TRACK Determines whether or not the user should be able to click on the row of past track buttons in the map legend window. A value of 0 means that the user will not be able to access this information, while a value of 1 means that they will.

CONE Determines whether or not the user should be able to click on the row of cone of uncertainty buttons in the map legend window. A value of 0 means that the user will not be able to access this information, while a value of 1 means that they will.

CURRENT Determines whether or not the user should be able to click on the current location button in the map legend window. A value of 0 means that the user will not be able to access this information, while a value of 1 means that they will.

4. APPENDIX B: FILESYSTEM INFORMATION

The file system is separated into five sections. These are the main files, experiment files, experiment resources, user data, and other assets. Each of these is detailed below.

4.1 Main Files

The main DynaSearch directory contains the files that are used during interaction with and creation of experiments. A quick overview is given of the most notable files.

admin.php - The page that administrators login to

advance.php and director.php - These files interact to ensure that users go to the right page when they login and click through the experiment

dynaview.php - The main training page that users interact with

editor.php - This is the page where the Training Page Editor loads

instructions.php -This is the page that is used to display instructions to the users

questDisplay.php -This page is used to implement the Questionnaire Viewer

questEditor.php -This page is used to implement the Questionnaire Editor

question.php -This page is used to display questionnaires to users

randQuestEditor.php -This page is used to implement the Questionnaire Catalog

survey setup.php -This page is used to implement the Experiment Editor

4.2 Experiment Files

Inside the directory DynaSearch/hurricane data is a folder for every experi.ment that has been created. Inside these folders are files that correspond to each of the pages of the experiment. This means that for each instruction page, each training page, and each questionnaire, there will be one file in the experiment's folder that cor.responds to it. Instruction and questionnaire pages will be displayed as HTML, while the training pages are encoded as hexadecimal characters.

4.3 Experiment Resources

The folder DynaSearch/expResources contains a number of sub-folders which store the information needed to create the various instruction and training pages. The purpose of these folders is detailed below.

advisory This directory contains a copy of all of the training pages that have been created. The contents are displayed in hexadecimal characters, and are only utilized inside the Dy.naSearch framework.

images This directory contains copies of all the images that can be used in the training pages, along with files that contain the geographic information for each image.

instructPages This directory contains all of the instruction pages that can be used in an experiment. Though they all have the .txt extension, the contents are just the HTML that would be found between the ¡body¿ tags in a standard HTML file.

tables This directory contains all of the files containing table information which can be used in the training pages.

tracking This directory contains all of the files that hold hurricane tracking information which can be used in the training pages.

4.4 User Data

This folder holds the user responses for each survey that a user participates in, as well as their window scaling information. Every value is comma separated, and commas that users type in the free response questions are replaced with a '. The files are named according to the user's user name.

4.5 Other Assets

The DynaSearch/assets directory hold all of the background scripts and files that are used to make the DynaSearch system work. Below is a list of the subdirectories and any major files that are located in each.

images This directory holds all of the images utilized by DynaSearch.

php This directory holds all of the php files that are used behind the scenes.

config.php -Holds the database information that is required to access and modify data

standard.php -Holds the standard header information for every php file. This includes the ¡head¿ tags.

db util.php -Provides the connection to the database specified in config.php

scripts This directory holds all of the javascript files that are used in DynaSearch. There are a few notables files.

editor.js -This is a rather large file that stores all of the functions used by the Training Page Editor and also by dynaview.php.

timer.js -This file contains the scripts that are used to cover all of the elements on a training page, as well as to keep track of the user click information before it is sent to the server.

style This directory just holds the style information for DynaSearch.

5. APPENDIX C: INSTALLING DYNASEARCH

To Install the DynaSearch Software:

1. Copy the DynaSearch folder to the appropriate folder utilized by the web server.

2. Go the the le DynaSearch/assets/php/config.php and provide the appropriate information for the following:

DB HOST -this is the host name where the database is located

DB USER -this is the administrator account that will be able to log in, query, and make changes to the EMDSS database

DB PASS -this is the password for DB USER account

Note -Do not change the database name unless the name is also changed on the database server

3. Import the EMDSS database into the MySQL server. The database le is named EMDSS DB.sql.zip and can be found in the DynaSearch directory.

4. To test whether the system was imported correctly, go to *webaddress*/DynaSearch/login.php with the user name jlcox5 with the password jlcox5. It should take you to a test.ing page.

If there are any problems or questions, please contact: Jonathan Cox at jlcox@g.clemson.edu

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