
Experiment Support System Documentation

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Administrator Documentation

The documentation in this section is aimed at system administrators and covers the *Installation*, *Setup*, *Configuration*, *Deployment*, and *Updating* of the Experiment Support System.

1.1 Installation

1.1.1 Core System

To install the Experiment Support System, download the “requirements.txt” from <https://bitbucket.org/mhall/experiment-support-system/raw/default/requirements.txt> and install using the following command:

```
pip install -r requirements.txt
```

It is recommended that you install the Experiment Support System into a [virtual environment](#) that has been set up with python 3.

1.1.2 Database Access

You will also need to install database access libraries for the database you intend to use. The Experiment Support System has been tested with [PostgreSQL](#) and [MySQL](#). [SQLite](#) is not supported, as it does not provide the features required to migrate the database when the Experiment Support System is upgraded. [Other database systems](#) that are supported by [SQLAlchemy](#) can be used, but have not been tested.

To use PostgreSQL as the database, run:

```
pip install psycopg2
```

For MySQL run:

```
pip install mysql-python
```

After the installation has completed, move on to the *Setup*.

1.2 Setup

The next step is to set up the Experiment Support System so that it is ready to run. For this you need to:

1. Generate a configuration file
2. Initialise the database

Both tasks are done using the configuration application included in the Experiment Support System. To see all options provided by the configuration application run:

```
ESS -h
```

1.2.1 Generate the Configuration

To generate the configuration file run:

```
ESS generate-config
```

You will be asked to provide the [SQLAlchemy connection string](#) for your database. If you don't know it yet, you can accept the default test database and change the configuration setting later.

You can also set the following parameters on the commandline:

- `-sqla-connection-string <SQLAlchemy connection string>`
- `-filename <Configuration Filename defaults to production.ini>`

All further configuration is done via the generated configuration file. Details of the available options is in the [Configuration](#) documentation.

1.2.2 Initialise the Database

After generating the configuration file, run:

```
ESS initialise-database <configuration.ini>
```

to create the initial database structure. This will also create a default administrative user with the following details:

```
username: admin
password: password
```

Warning: Make sure you change the password after logging in the first time!

The database initialisation can take an additional, optional parameter that removes any tables from a previous installation of the Experiment Support System. If you need this, then run:

```
ESS initialise-database <configuration.ini> --drop-existing
```

Sample Data

The Experiment Support System comes with a set of sample experiments that demonstrate some of the core functionality. To load these into the database run:

```
ESS load-sample-data <configuration.ini>
```

The sample experiments will be assigned to the first user in the database, which by default will be the administrative user created as part of the database initialisation.

After completing the application setup, continue either with the *Configuration* or *Deployment* documentation.

1.3 Configuration

The configuration file generated in the *Setup* step consists of the following configuration sections:

- *Experiment Support System configuration*
 - *Application settings*
 - *SQLAlchemy database connection string*
 - *E-Mail settings*
 - *Session handling configuration*
 - *Pyramid framework configuration*
- *Default server configuration*
- *Logging configuration*

The configuration file uses the standard .ini format that follows this structure:

```
[section_name]
setting.name = value
```

1.3.1 Experiment Support System configuration

The settings in this section configure the Experiment Support System itself. To work correctly, they must all be specified within the `[app:main]` section of the configuration file.

Application settings

app.title The title to use for the Experiment Support System. Change this to integrate the system into a site-specific branding.

Default: Experiment Support System

SQLAlchemy database connection string

sqlalchemy.url The SQLAlchemy database connection URL. Consult the [SQLAlchemy connection string](#) documentation to find the correct format for the database and database library you are using.

E-Mail settings

email.smtp_host The host-name of the SMTP server to use for sending e-mails. If this setting is not specified then none of the e-mail related functions in the Experiment Support System will be enabled.

Session handling configuration

The settings in this section specify how the user sessions are managed. For details on the available settings, consult the [beaker documentation](#). In most cases you will only want to change the *beaker.session.key* setting.

beaker.session.lock_dir The directory used for locking.

Default: %(here)s/tmp

beaker.session.type The type of session storage to use. By default uses cookie-based sessions.

Default: cookie

beaker.session.key The key to use for session access. With cookie-based sessions this is the name of the cookie to use.

Default: ess

beaker.session.encrypt_key Encryption key to use to ensure cookie-based sessions are harder to manipulate. The key is automatically and semi-randomly generated when the configuration is created.

beaker.session.validate_key Validation key to use to test that cookie-based sessions have not been manipulated. The key is automatically and semi-randomly generated when the configuration is created.

Pyramid framework configuration

The settings in this section are set for a production deployment and should not be changed in a production environment.

pyramid.reload_templates Whether to automatically reload HTML templates when they are updated.

Default: false

pyramid.debug_authorization Whether to provide detailed debug information for the authorization process.

Default: false

pyramid.debug_notfound Whether to provide detailed debug information for URLs that are not handled by the Experiment Support System.

Default: false

pyramid.debug_routematch Whether to provide detailed debug information on the URL processing functions.

Default: false

pyramid.debug_templates Whether to provide detailed debug information for errors in the HTML templates.

Default: false

pyramid.default_locale_name The default locale to use.

Default: en

pyramid.includes Any additional components to load on application startup. By default the Pyramid Transaction Management component is loaded. For debugging add `pyramid_debugtoolbar` to this setting. **This will allow arbitrary access to everything in the application. Do not include on a production system.**

Default: pyramid_tm

1.3.2 Default server configuration

This section configures the default built-in application server, which is mainly designed for use in development and testing. For production scenarios consult the *Deployment* documentation. These settings must all be specified with in the `[server:main]` section.

use The application server entry point to use.

Default: `egg:waitress#main`

host The host to listen at for connections.

Default: `0.0.0.0`

port The port to listen at for connections.

Default: `6543`

1.3.3 Logging configuration

The settings in this section are passed on to Python's default logging configuration engine. Consult the [Python logging documentation](#) for details on how to adapt the configuration. The settings span a number of sections, detailed in the [Python logging documentation](#).

1.4 Deployment

In-production deployment has been tested using [Apache2](#) and `mod_wsgi`. For other deployment scenarios, please consult the [pyramid deployment](#) documentation.

1.4.1 Deploying with Apache2 & mod_wsgi

To deploy the Experiment Support System via [Apache2](#) and `mod_wsgi` add the following settings to the `VirtualHost` configuration:

```
WSGIDaemonProcess pyquest user=www-data group=www-data processes=1 threads=10 python-
↳path=/path/to/virtualenv/lib/python2.7/site-packages
WSGIScriptAlias /pyquest /path/to/the/application.wsgi
<Location /pyquest>
    WSGIProcessGroup pyquest
</Location>
```

Note: Leave the `processes` value at 1. Use the `threads` option to specify how many parallel requests to support.

Then create the following script to to run the application via `WSGI`. Adapt it by replacing the paths with the paths to where the Experiment Support System is installed:

```
import os
os.chdir(os.path.dirname(__file__))
import site
import sys

# Remember original sys.path.
prev_sys_path = list(sys.path)

site.addsitedir('/path/to/virtualenv/lib/python2.7/site-packages')
```

```
# Reorder sys.path so new directories at the front.
new_sys_path = []
for item in list(sys.path):
    if item not in prev_sys_path:
        new_sys_path.append(item)
        sys.path.remove(item)
sys.path[:0] = new_sys_path

from pyramid.paster import get_app
from paste.script.util.logging_config import fileConfig
fileConfig('/path/to/the/application/pyquest.ini')
application = get_app('/path/to/the/application/pyquest.ini', 'main')
```

1.5 Updating

1.5.1 Preparation

Before updating the Experiment Support System, perform the following three steps to put the Experiment Support System into a state that is ready for the update:

1. The first step is to download the latest “requirements.txt” from <https://bitbucket.org/mhall/experiment-support-system/raw/default/requirements.txt>.
2. Next stop the Experiment Support System application. How to do this depends on how you have deployed it (see *Deployment*).
3. Finally, make a backup of the database. This will allow you to roll-back the application in case of there being any issues that arise during or after the update.

1.5.2 Core update

To perform the actual update of the Experiment Support System, first activate the [virtual environment](#) you previously installed the Experiment Support System into. To install the new version you downloaded, run the following command:

```
pip install -r requirements.txt
```

This will install the downloaded version and also automatically install and update any libraries the Experiment Support System depends on.

Next update the database to the latest schema by running:

```
ESS update-database <configuration.ini>
```

You can then re-start the Experiment Support System and test that the update has installed successfully.

The documentation in this section is aimed at the researcher wishing to use the Experiment Support System to set up an on-line, human-subject experiment.

2.1 Core Concepts

Before delving into the depths of the experiment Support System, it is worthwhile to briefly cover the core concepts used in the experiment Support System and how they interact with each other.

The central element in the experiment Support System is the *experiment*. The *experiment* is created by the *researcher*, who then recruits the *participants* who generate the *experiment's results*.

Each *experiment* consists of one or more *pages*. In the *experiment* these *pages* are linked together to define the *experiment* participants' path through the *experiment*. On each *page* the participants are shown a series of *questions*. The *questions* can either be used to present the participants with information or to request the participants to provide responses to specific prompts or questions.

Experiments can have *data* attached to them, enabling the creation of flexible, data-driven *experiments*. The Experiment Support System supports two types of *data*. Basic *data sets* consist of lists of *data items* and can be attached to individual *pages*. Each *data items* attributes can then be used in the questions or information shown to the participants. *Permutation sets* are automatically derived from two source *data sets* and can be used to create complex experiments that use a latin-square to ensure that participants responses to stimuli are balanced.

Control Item

Control Items A *data item* for which the `control` flag has been set to "Yes".

Data *Experiments* can have data attached to them, in order to support the creation of flexible, data-driven *experiments*. The Experiment Support System supports two kinds of data: *data sets* and *permutation sets*.

Data Item

Data Items A data item is a set of key - value attributes that are grouped into one item and that can be accessed in a *page* that has been linked to the *data set* the data items belong to.

Data Set

Data Sets Basic data sets are lists of *data items*, that can be used in *pages* to create data-driven *experiments*.

Experiment

Experiments The core element of the experiment Support System is defined as a set of *pages* that are linked together to define the experiment that the *participants* provide *results* for.

Page

Pages A page in an *experiment* consists of one or more *questions*. pages are linked together to form the complete *experiment* and the transitions between pages define the participants' path through the *experiment*.

Participant

Participants The participants are people recruited by the *researcher* to participate in an *experiment*

Permutation set

Permutation sets Permutation sets are used to create latin-square based, balanced *experiments*. They are derived from two basic *data sets* based on constraints set up when the permutation set is created.

Question

Questions A question either shows information to the *experiment* participants or requests that the participants provide a response to a prompt or question. The experiment Support System comes with a default set of questions, but additional question sets can be added.

Researcher The researcher is an Experiment Support System user who creates *experiments*, invites *participants*, and processes *results*.

Result

Results When each *participant* interacts with the *experiment*, the responses are stored by the Experiment Support System and form the results that the *researcher* can download and then process to evaluate the *experiment's* output.

2.2 Accessing the Experiment Support System

To access the Experiment Support System, use your browser to access the URL at which the administrator has installed the Experiment Support System.

2.2.1 Accessing and Login

After accessing the URL, you will see the landing page in *figure 1*. If there are any “live” experiments, then these will be shown here. More importantly, in the top-right corner, the login link takes you into the Experiment Support System itself, in order to set-up or work on experiments.

[» Experiment Support System](#)

[Login](#)

Experiment Support System

There are currently no experiments available for participation:

Powered by [ExperimentSupportSystem](#)

Fig. 2.1: **Figure 1:** The landing page of the Experiment Support System. Shows experiments that are currently “live” and provides the login functionality.

Following the “Login” link, takes you to the login page (*figure 2*), where using the username provided by your administrator and your password you can log into the Experiment Support System. If you have forgotten your password, then use the “Forgotten password” button in the bottom right corner to request a new one.

» [Experiment Support System](#) » [Login](#) [Login](#)

Login

Username

Password

[Forgotten password](#) [Don't login](#) [Login](#)

Powered by [ExperimentSupportSystem](#)

Fig. 2.2: **Figure 2:** The login page including the link to the “Forgotten password” functionality.

2.2.2 General Structure

After logging in you are shown the list of experiments that you have created previously (*figure 3*). If you have not yet created any experiments, then the list will be empty. *Figure 3* shows the main layout of the Experiment Support System.

In the top-right corner are a set of links related to your account. The “Experiments” link will always take you back to this screen. The “Preferences” link lets you change your account preferences, the “Change Password” link lets you change your password, and the “Logout” link logs you out of the Experiment Support System and takes you back to the initial landing page (*figure 1*).

If you have administrative permissions, then in the top-left corner links to the user, permission group, and question type administration functions are shown.

Below these sets of links the breadcrumbs document your current location within the Experiment Support System and can be used to get back to the start, if you get lost.

Next, the gray bar, is the action bar. This contains the main actions that are available to you on the current page. Here they are functions to create a “New Experiment” and to “Import an Experiment” (see *Creating an Experiment*).

The area below the action bar contains the page’s main content, in this case the list of experiments you have created.

Finally, at the bottom of each page is a link to the Experiment Support System’s documentation.

2.3 Working with the Experiment Support System

2.3.1 Creating an Experiment

There are two ways of creating an experiment. You can either create a new experiment from scratch or import an existing experiment and then modify that.

Creating a new Experiment

To create a new experiment, click on the “New Experiment” button on the list of experiments page (see *Accessing the Experiment Support System*). On the “New Experiment” page (*figure 1*) you provide the new experiment’s title and other settings:

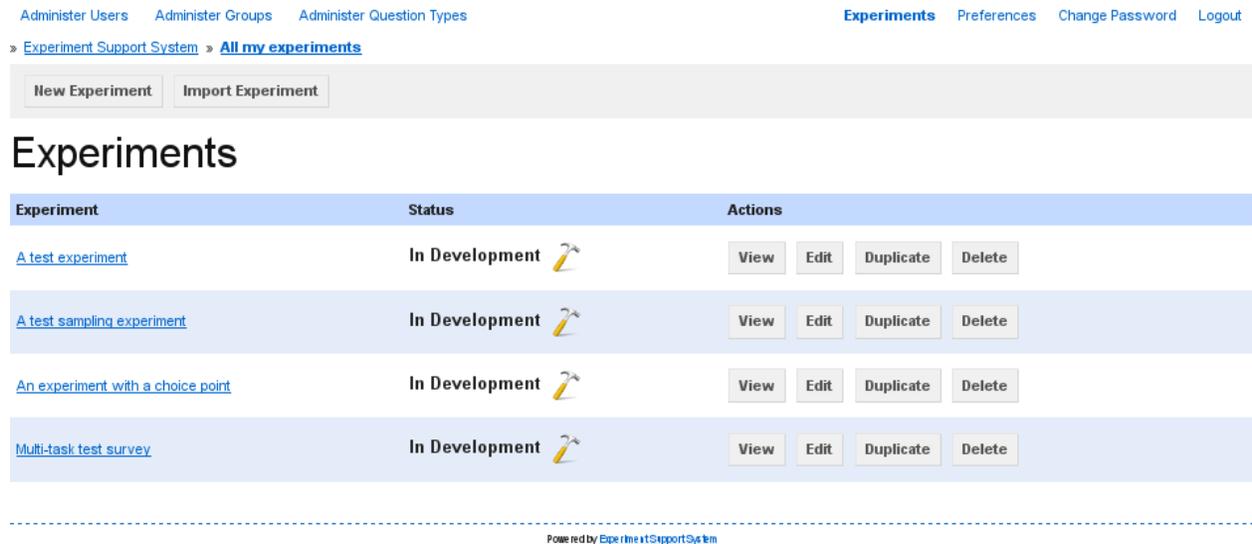


Fig. 2.3: **Figure 3:** The user experiment landing page showing the experiments you have previously created and the functions for creating new and importing existing experiments.

Title The title is used to identify the experiment and shown on the main landing page

Description If the experiment is publicly available, then this description is shown to prospective participants so that they have an idea of what they experiment is about

Display Language The language that is used in the experiment participants’ interface. Currently only English is supported.

Public Tick the checkbox to have your experiment show up on the main landing page when you run it.

Click on the “Create” button to create the new experiment and be taken to the experiment construction and editing page (see *Editing an Experiment*).

Importing an existing Experiment

The second method for setting up a new experiment is to import an existing experiment and then to modify that to create the desired experiment. To import an experiment, click on the “Import Experiment” button on the list of experiments page (see *Accessing the Experiment Support System*).

On the importing page (*figure 2*) select the experiment file you wish to import and then click on the “Import” button to start the import. After the experiment has been imported, you will be taken to the experiment construction and editing page (see *Editing an Experiment*), where you can edit and modify the imported experiment.

2.3.2 Editing an Experiment

After creating a new, importing an existing, or selecting to edit a previously created experiment, you are taken to the experiment overview page (*figure 1*).

From here (*figure 1*) you can access and modify all of the experiment’s aspects. The four main tabs are:

Experiment In this tab you find all the functions for editing the *experiment’s* individual *pages* and connecting them together to produce the final experiment.

Data In this tab you can create and upload *data sets* that can then in turn be used in the experiment’s *pages* to create complex, data-driven *experiments*.

[Administer Users](#) [Administer Groups](#) [Administer Question Types](#) [Experiments](#) [Preferences](#) [Change Password](#) [Logout](#)

» [Experiment Support System](#) » [All my experiments](#) » [New Survey](#)

[← All my experiment](#)

New Experiment

Title

Summary

Display Language

English ▾

Public

Tick for a public survey

Powered by [Experiment Support System](#)

Fig. 2.4: **Figure 1:** On the “New Experiment” page, you specify the new experiment’s basic settings.

[Administer Users](#) [Administer Groups](#) [Administer Question Types](#) [Experiments](#) [Preferences](#) [Change Password](#) [Logout](#)

» [Experiment Support System](#) » [All my experiments](#) » [Import an experiment](#)

Import an experiment

Please select the EXP file that contains the experiment you wish to import:

File

No file selected.

Powered by [Experiment Support System](#)

Fig. 2.5: **Figure 2:** Select the experiment file to import and then click on the “Import” button to import the experiment.

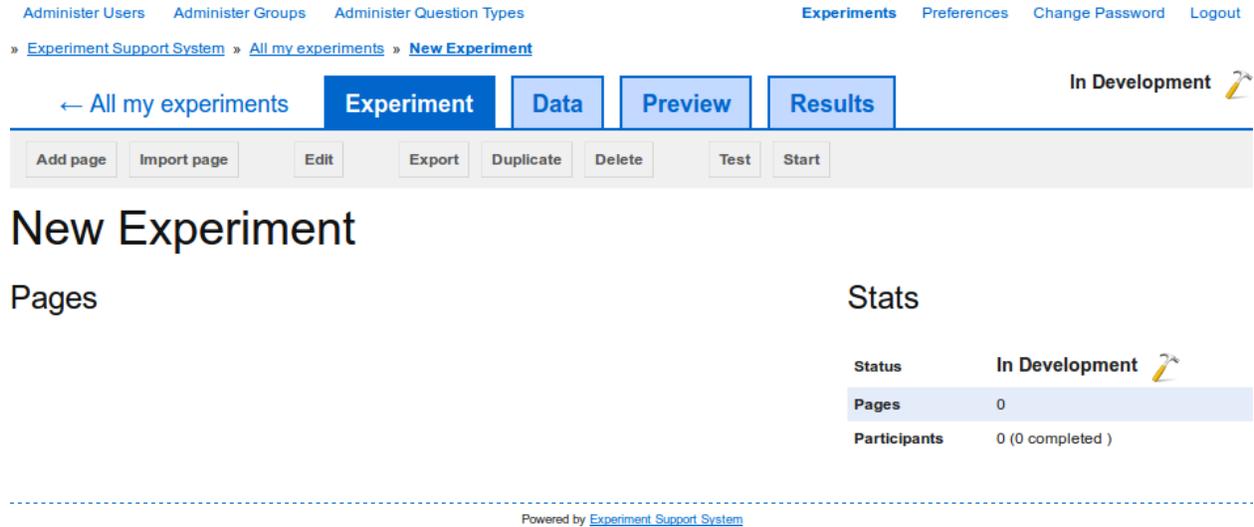


Fig. 2.6: **Figure 1:** After creating a new, importing an existing, or selecting to edit a previously created experiment, you are shown the experiment overview page.

Preview The preview tab provides a preview of all the *pages* in the :term‘experiment‘ in their approximate order.

Results The results tab provides access to the *participants’* responses to the *questions* on the :term‘experiment‘’s *pages*.

On the right next to the four main tabs, the *experiment’s* current status is displayed. If you hover over the status, options for changing the *experiment’s* status are shown.

In the main area on the left, the *experiment’s pages* are listed and via that list *pages* can be edited or deleted. The box on the right gives a brief overview over the current state of the *experiment*, particularly useful when the experiment is being run.

Further details on the available editing functions can be found in the following sections:

Editing the experiment’s settings

To edit the *experiment’s* settings, click on the “Edit” button in the *experiment* overview page’s toolbar (see *Editing an Experiment*, figure 1). This takes you to the experiment settings page (*figure 1*).

The experiment settings page allows you to update the following settings:

Title The title is used to identify the experiment and shown on the main landing page

Description If the experiment is publicly available, then this description is shown to prospective participants so that they have an idea of what they experiment is about

Display Language The language that is used in the experiment participants’ interface. Currently only English is supported.

CSS Styles Click on this setting to show an input box via which you can specify additional Cascading Stylesheet rules that are used to style the experiment that is shown to the *participant*. The rules specified in this box are applied to all *pages*.

JavaScript Click on this setting to show an input box via which you can specify additional JavaScript code that is run on each *page*, when the *participants* see the *experiment*.

New Experiment - Edit

Title

Summary

Display Language

English ▾

[CSS styles](#)

[Javascript](#)

First page

▾

Notifications

Recipient	Type	Time or Count
+		

Public

Tick for a public experiment

Fig. 2.7: **Figure 1:** The experiment settings page showing all available settings

First page Using this drop-down selection, specify which of the *pages* is to be used as the first *page* that is shown to the *participants*.

Notifications The Experiment Support System can automatically generate notifications when certain milestones are reached in the experiment. To add a notification, click on the “+” button. You can then specify the e-mail address that the notification is sent to, the event (either at specific intervals or when a minimum number of *participants* have participated) that causes the notification to be sent, and the time interval or number of *participants* for the event.

You can specify multiple notifications. To delete a notification, click on the “-” button next to the notification you wish to delete.

Public Tick the checkbox to have your experiment show up on the main landing page when you run it.

To save any changes you have made, click on the “Update” button. To discard the changes and go back to the experiment overview page, click on the “Don’t update” button.

Delete an experiment

To delete an *experiment* click on the “Delete” button in the experiment overview page’s toolbar (see *Editing an Experiment*, figure 1). This will also delete all of the *experiment’s pages, data, participants, and results*.

You can also delete an *experiment* by clicking on the “Delete” *experiment’s* “Delete” button in the overview list of all your *experiments*.

Create a page

To create a new *page* and add it to the *experiment*, you can either create a completely new page from scratch or import an existing page.

Add a new page

To add a completely new page, on the experiment overview page, click on the “Add page” button in the toolbar. You are then shown the “Add a Page” page (*figure 1*).

Administer Users Administer Groups Administer Question Types Experiments Preferences Change Password Logout

» Experiment Support System » All my experiments » New Experiment » Add a Page

← All my experiments Experiment Data Preview Results In Development

New Experiment - Add a Page

Name

Title

Don't add Add

Powered by [Experiment Support System](#)

Fig. 2.8: **Figure 1:** Specify a name and a title to create a new page and add it to the *experiment*.

To add the new page, specify the page’s name and title. The name is used to identify the *page* within the *experiment* and must thus be unique. The title is displayed to *participants* when they participate in the experiment and can be empty if you do not want to show a title.

Click on the “Add” button to create the new page and add it to the experiment. After clicking on this button, you are taken to the page editing interface (see *Editing a page*).

Clicking on on the “Don’t add” button takes you back to the experiment overview page without creating a new page.

Import an existing page

To import an existing page, on the experiment overview page, click on the “Import page” button in the toolbar. You are then shown the “Import page” interface (*figure 2*).

Click on the “Browse” button to select the page file to import. After selecting a file, click on the “Import” button to import the page into the *experiment*. After the page has been imported you are taken to the page editing interface (see *Editing a page*).

Clicking on on the “Don’t import” button takes you back to the experiment overview page without importing a page.

Editing a page

When you start editing a new *page*, it initially has no *questions* and the editing interface looks looks similar to *figure 1*.

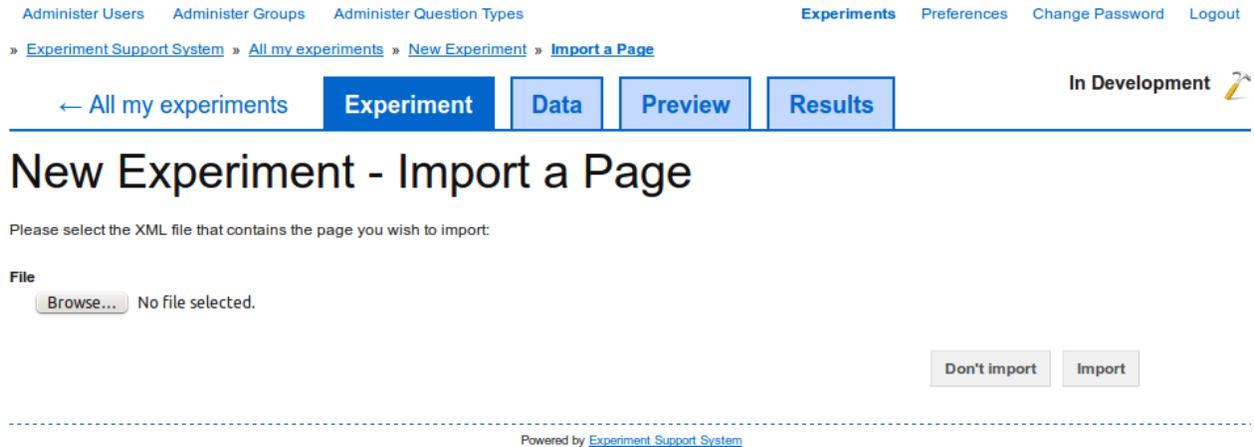


Fig. 2.9: **Figure 2:** To import an existing page, simply select the page’s file and add it to the *experiment*.

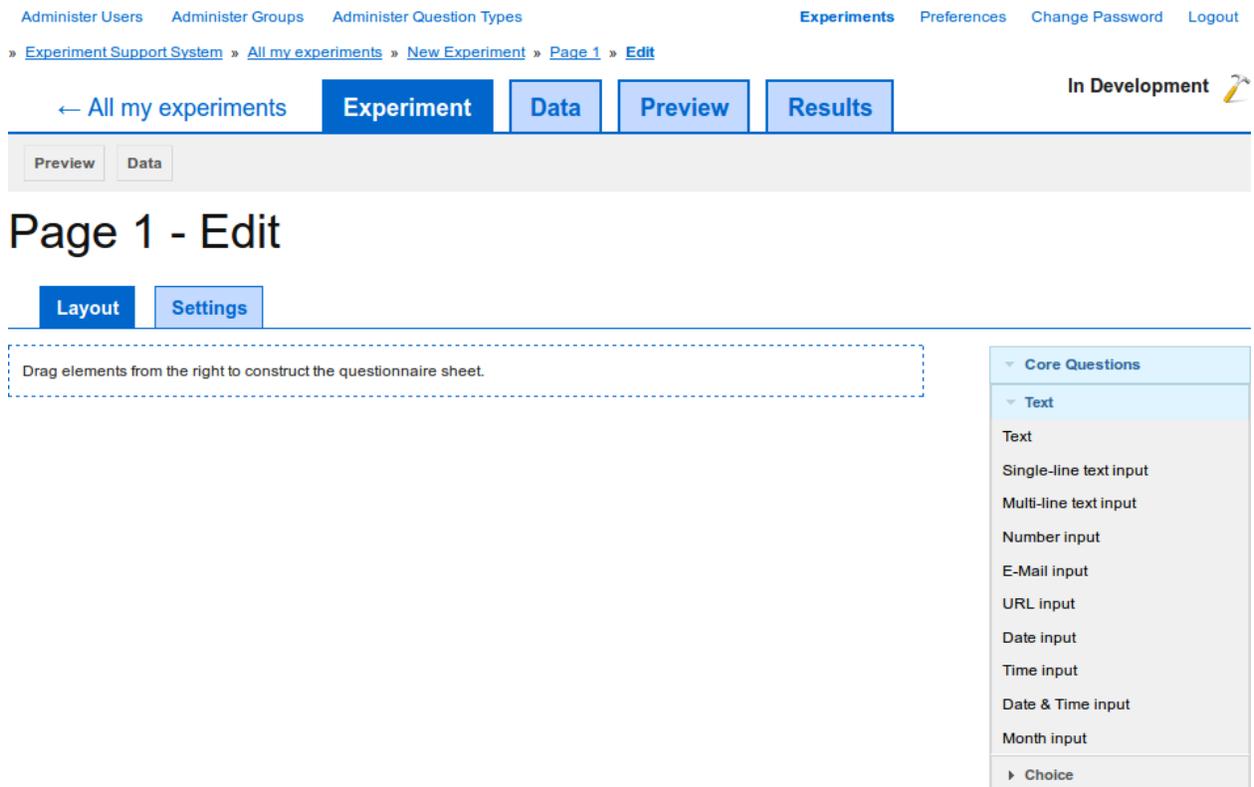


Fig. 2.10: **Figure 1:** The area on the left of the editing interface contains all the *questions* on this *page*. You can drag *questions* from the list of available *questions* on the right into your *page*.

Adding questions

To add *questions* to your *page*, simply drag them from the gray box on the right into the main *question* area on the left. After dragging a *question* into the *page*, the interface will look similar to *figure 2*. For a detailed list of *questions* that are always available, check the *Default Question Types*.

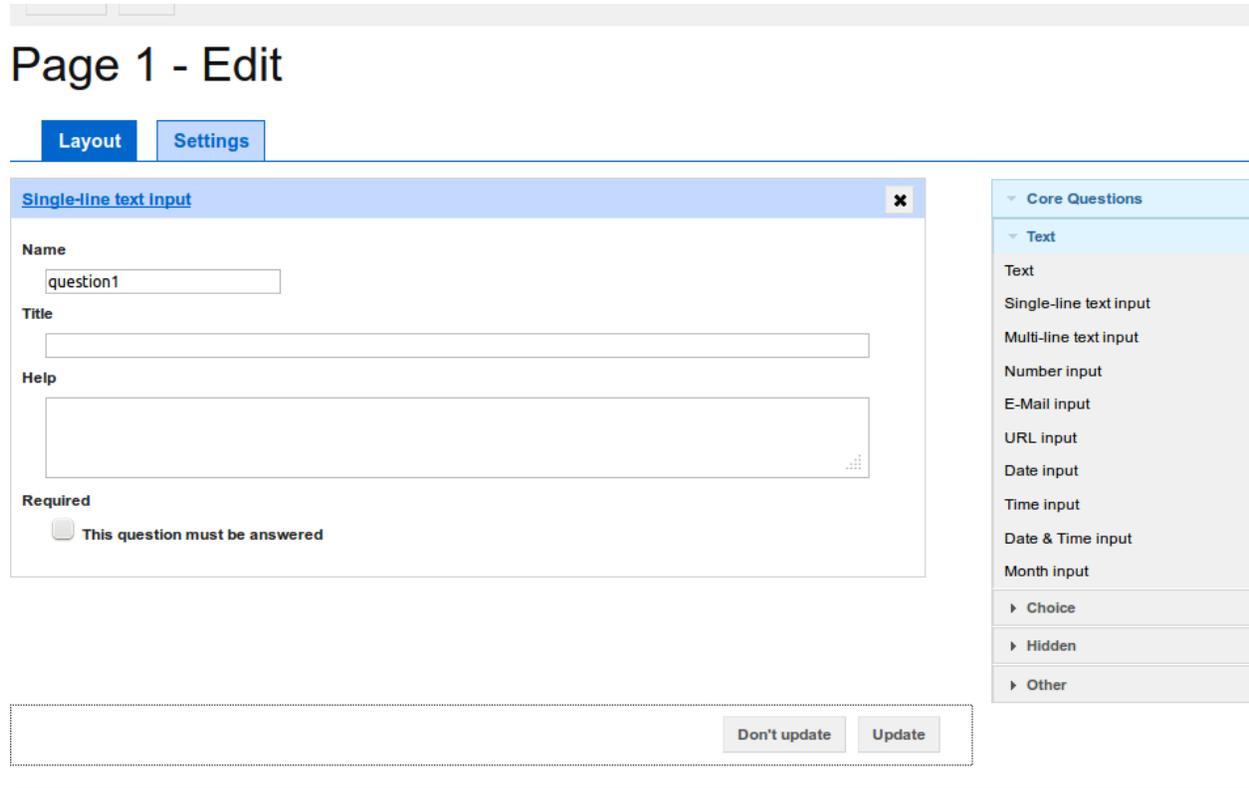


Fig. 2.11: **Figure 2:** After adding a *question* to the *page*, the *question*'s attributes can be edited.

After adding a *question* to a *page* or if the *page* already had one or more *questions*, then the *questions*' attributes can be edited. To save any changes you have made, click on the "Update" button at the bottom of the page. Clicking on the "Don't update" button will take you back to the *page*'s preview.

Previewing the page

To see what the *page* looks like after adding, removing, or changing *questions*, click on the "Preview" button in the toolbar. This will show a preview of how the *page* will look to the *experiment*'s *participants* (see *Previewing a page*).

Editing the page's settings

In addition to editing a *page*'s questions, you can also change a number of settings that are available for each *page* (see *figure 3*).

To edit the *page*'s settings, click on the "Settings" tab above the list of *questions*. In the "Settings" tab you can configure the following settings:

Name The unique name of the *page*.

The screenshot shows the 'Settings' tab for a page. The form contains the following fields and options:

- Name:** page1
- Title:** Page 1
- Type:** Single (dropdown)
- Data Items:** 0
- Control Items:** 0
- Show Question Numbers:** Yes (dropdown)
- Transitions:** A table with columns 'Next Page', 'Condition', and 'Action'. The first row shows '--- Finish ---', 'No Condition', and a '-' button. A '+' button is also present below the table.
- Links:** [CSS styles](#) and [Javascript](#)
- Buttons:** Don't update and Update

Fig. 2.12: **Figure 3:** Click on the “Settings” tab to change a page’s settings.

Title The *page*’s title, which is shown to *participants* when they view the *page*.

Type The Experiment Support System supports *pages* that each *participant* can answer once and *pages* on which they can answer the questions repeatedly. This setting determines which of these two types the *page* is. Use this setting to specify which of the two modes you want for this *page*.

Data Items The number of *data items* to show to each *participant*. This only has an effect if the *page* is linked to a *data set*. See *Editing a data set* for details.

Control Items The number of *control items* to show to each *participant*. This only has an effect if the *page* is linked to a *data set*. See *Editing a data set* for details.

Show Question Numbers Use this setting to specify whether *questions* should automatically be numbered, when they are shown to the *participants*.

Transitions Using the transitions you specify which *pages* to transition to, after the *participant* has answered all *questions* on this *page*. You can specify multiple transitions. The first transition for which the conditions hold will be used. Use the “+” button to add further transitions and the “-” next to a transition to delete that transition.

The following three types of transitions are supported:

Unconditional This will always transition to the specified *page*.

Participant answer If the answer the participant provided to a question equals the given value, then transition to the specified *page*.

Permutation If there are more items in the *permutation set* to work through for the user, then transition to the specified *page*.

CSS Styles Clicking on the “CSS Styles” link shows a text area where you can specify additional CSS rules that are added to the *page* when it is shown to the *participants*.

Javascript Clicking on the “Javascript” link shows a text area where you can specify extra JavaScript code that is run when the *page* is displayed to the *participants*.

Previewing a page

You can reach the preview page by clicking on the page’s title on the experiment page (see *Editing an Experiment*) or by clicking on the “preview” button on the edit page (see *Editing a page*).

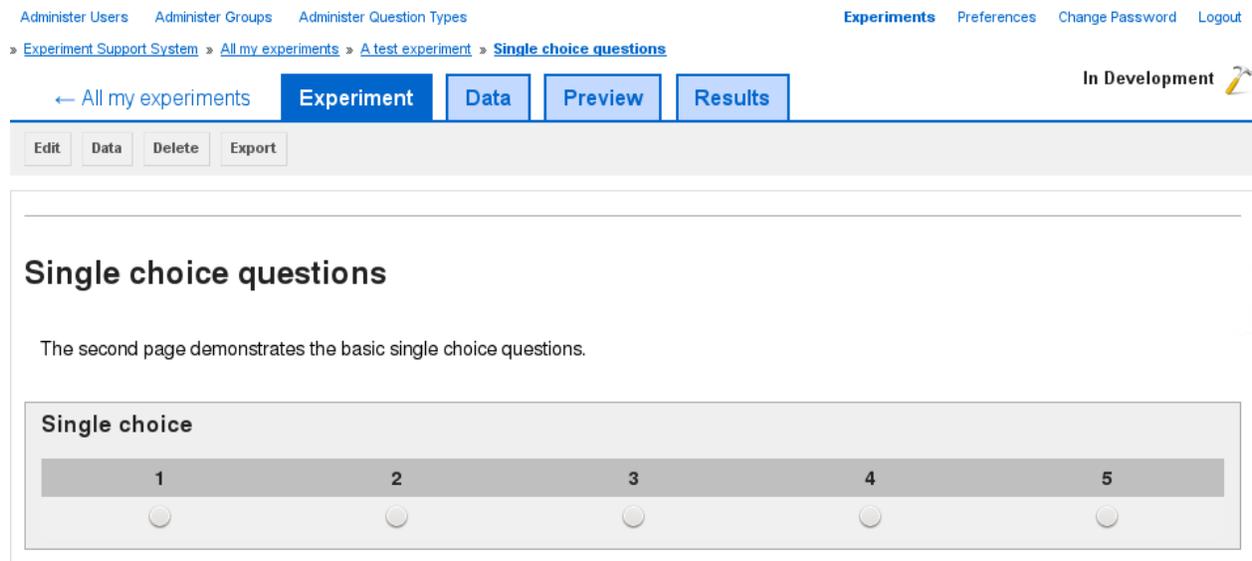


Fig. 2.13: **Figure 1:** The preview shows the page as the experiment *participants* will see it

On the preview page (*figure 1*) you are shown the experiment *page* as it will be shown to the experiment participants. The page is fully functional with one exception and if you have configured it to use *data items*, then a sample selection will be loaded. However, no *permutation sets* will be loaded, so any page using one of those will show placeholders instead of the *permutation set* data. If you wish to try out an experiment with *permutation sets*, then you need to change the experiment into “test” mode (see *Changing the Experiment’s Status*).

Delete a page

To delete a *page* from an *experiment*, go to the page’s preview (*figure 1*) and then click on the “Delete” button.

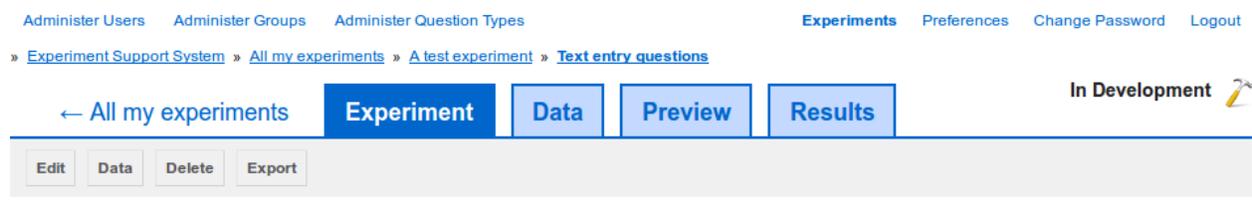


Fig. 2.14: **Figure 1:** To delete the current page, click on the “Delete” button in the *page* preview.

You will be asked to confirm that you wish to continue with deleting the page, as the deleting process is *irreversible*.

Creating data

The Experiment Support System allows for dynamic experiment pages through the use of *data sets*. To create a new *data set*, switch to the *data set* overview page (*figure 1*) by selecting the “Data” tab at the top of the page.

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» Experiment Support System » All my experiments » New Experiment » Data

← All my experiments Experiment **Data** Preview Results In Development

Upload Data Set New Data Set New Permutation Set

Data Sets

Name	Attached to	Action
This experiment does not have any data sets.		

Permutations

Name	Attached to	Action
This experiment does not have any permutations.		

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Fig. 2.15: **Figure 1:** Select the “Data” tab to view existing data sets and create new ones.

There are two kinds of *data sets*, the standard *data set*, from which *data items* are sampled, and the *permutation set* which is used to support latin-square experiments.

Create a new data set

To create a new *data set*, click on the “New Data Set” button and give the new *data set* a unique name (*figure 2*). Then click on the “Create” button to create the new data set.

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New Data Set

Name

Don't create Create

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Fig. 2.16: **Figure 2:** Create a new data set by giving it a unique name.

After creating the new *data set*, move on to *Editing a data set* to edit the *data set* keys and *data items*.

Upload an existing data set

Alternatively, you can upload an existing set of data using a CSV (Comma Separated Value) file. Click on the “Upload Data Set” button and then add select the CSV file to upload (*figure 3* <#fig-data-set-upload>). Click on the “Browse” button to select the CSV file to upload and then on the “Upload” button to upload the CSV file and create a new *data set* from the CSV file.

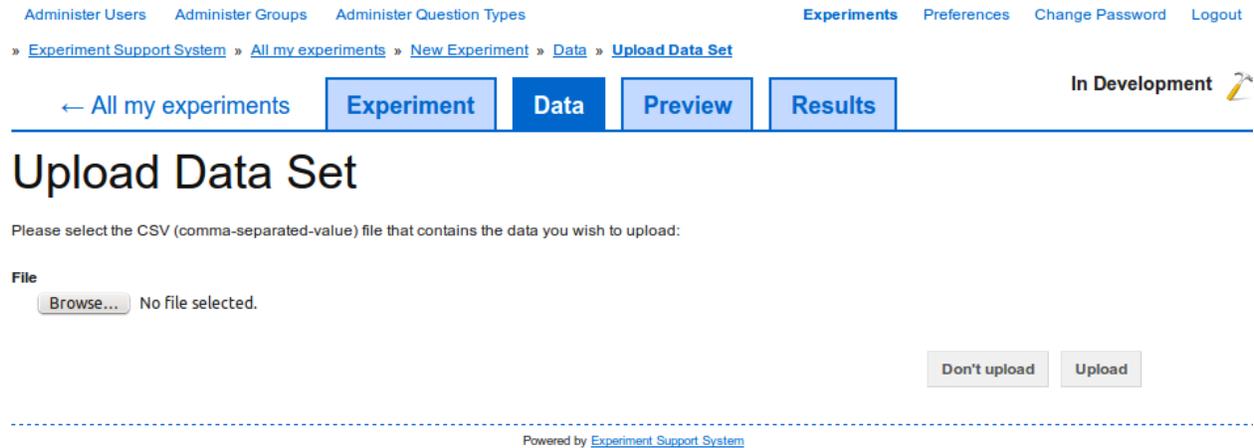


Fig. 2.17: **Figure 3:** Upload a new CSV file

After uploading the new *data set*, move on to *Editing a data set* to edit the uploaded data.

Create a new permutation set

The process for creating a new *permutation set* is the more or less the same as creating a new *data set*. Click on the “New Permutation Set” button (*figure 1*) and give the new *permutation set* a unique name (*figure 4*). Click on the “Create” button to create a new *permutation set*.

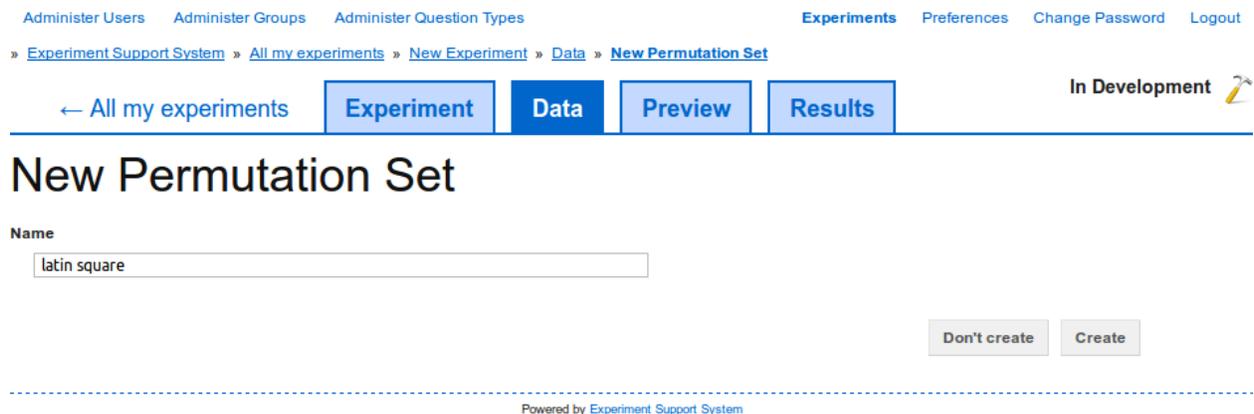


Fig. 2.18: **Figure 3:** Create a new permutation set and give it a unique name.

After creating the new *permutation set*, move on to *Editing a permutation set* to edit the *permutation set*’s settings.

Editing a data set

A *data set* consists of the *keys* that define the attributes that each *data item* has and the actual *data items*. Both can be edited independently.

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[New Data Set](#)
[New Permutation Set](#)

Data Sets

Name	Attached to	Action
This experiment does not have any data sets.		

Permutations

Name	Attached to	Action
This experiment does not have any permutations.		

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Fig. 2.19: **Figure 1:** To edit the keys of a data set, click on the “Edit” button for the data set you want to edit. To edit data items click on the title of the data set.

Edit the data set’s keys

To add keys to a *data set*, click on the “Edit” button next to the *data set* you want to edit (*figure 1*). On the edit page (*figure 2*) use the “+” and “-” buttons to add or remove keys from the *data set*.

To add a new key to the *data set*, click on the “+” button. Then type the new key’s label into the text box. If the *data set* has *data items*, then each *data item* will be assigned an empty value for that key.

To remove a key from the *data set*, click on the “-” button next to the key you want to remove. If the *data set* has *data items*, then the values for that key will be removed from all *data items*.

To save the changes you have made to the data set’s keys, click on the “Update” button.

Adding data items to the data set

To add a *data item* to a *data set*, click on the title of the *data set* in the data set overview (*figure 1*) to go to the list of *data items* (*figure 3*).

To add an additional *data item* to the *data set*, click on the “Add Item” button to get to the *data item* editing page (*figure 4*).

For each key defined on the *data set*, an input field is provided. Enter the values for the *data item* you wish to add and click on the “Add” button.

Data items can be marked as *control items* by selecting the “Control Item” checkbox. *Control items* are used to filter participants who are answering the questions randomly or without considering the actual question. This is achieved by

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Edit Data Set

Name

Item Attributes

Key	Action
<input type="text" value="task"/>	-
	+

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Fig. 2.20: **Figure 2:** To add a key to the data set, click on the “+” button. To remove a key, click on the “-” button next to the key you wish to delete.

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data set 2

Identifier	Control item	task	Action
53		Please do this	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

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Fig. 2.21: **Figure 3:** The data set view lists all data items assigned to the data set.

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Add Data Item

Control item

Yes

Task

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Fig. 2.22: **Figure 4:** The number of values you need to enter depends on the number of keys defined on the *data set*.

specifying the correct response to a question for the *control items*, when the *data set* is linked to a *page* (see *Linking a data set to a page*). Then, when the participants work through the experiment, the Experiment Support System can check the participants' responses to the correct response. To ensure that this does not flag up participants who are treating the experiment seriously, the correct response for a *control item* must be obvious. When *data items* are sampled for display, the number of *data items* and *control items* can be specified separately, ensuring that each *page* displays the specified number of *control items* to each participant.

Removing data items from a data set

To remove a *data item* from a *data set*, click on the “Delete” button for the *data item* you wish to delete (*figure 3*). You will be asked to confirm the action, as it is irreversible.

Editing a permutation set

Delete data

To delete *data sets* or *permutation sets*, select the “Data” tab (*figure 1*). Then click on the “Delete” button next to the *data set* or *permutation set* you want to delete.

You will be asked to confirm the deletion, as the process is irreversible. If you used the data set on any page, then that link will automatically be removed.

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» Experiment Support System » All my experiments » New Experiment » Data

← All my experiments Experiment **Data** Preview Results In Development 

Upload Data Set New Data Set New Permutation Set

Data Sets

Name	Attached to	Action
data set 1		Edit Download Delete
data set 2		Edit Download Delete

Permutations

Name	Attached to	Action
latin square		Edit Delete Download

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Fig. 2.23: **Figure 1:** Select the “Data” tab to view existing data sets and delete them.

Linking a data set to a page

2.3.3 Default Question Types

Text output

Simple text input

Choices

Other

2.3.4 Changing the Experiment’s Status

2.3.5 Exporting from the Experiment Support System

Exporting results

Exporting an experiment

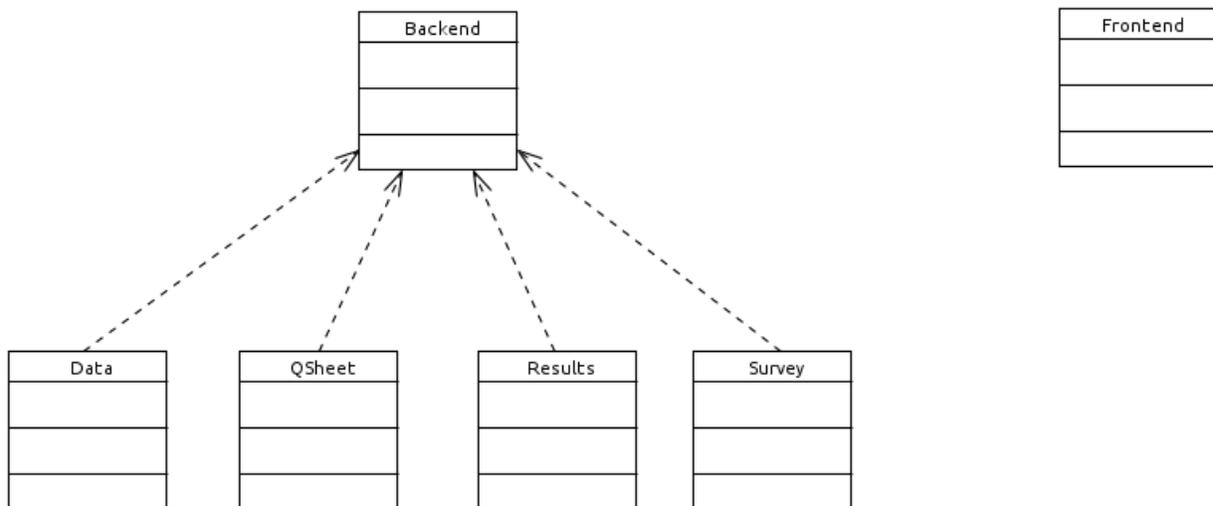
Exporting a page

Exporting data

2.3.6 Duplicating an Experiment

3.1 Basic Application Design

3.1.1 Components



The main parts of the application are roughly structured into two parts. The *Backend* handles the setting up of the questionnaires and the *Frontend* handles taking the questionnaire participants through the questionnaire. The *Backend* functionality is split into four parts:

Survey The *Survey* component handles setting up of the generic survey-level data and populates the *Survey* and *QSheet* tables.

QSheet The *QSheet* component handles the definition of each individual survey page and populates the *QSheet*, *Question*, *QSheetAttribute* and *QSheetTransition* tables.

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- `search`

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