

shnip.it

Who? F. Hu J. Kay F. Johnson R. Saunders
J. Warburton

When? 2014-04-10

Project Infrastructure

Planning

Redmine

- Well-known, established Free project-management software
- Very customizable
- VCS integration
- ...but kind of a pain to set up!

Backlogs

- Agile support for Redmine
- Group tasks into sprints
- Nice burndown charts
- Only thing we found that works with our Redmine version 😊

Facebook

- Good for informal conversations

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Collaboration

git

- Lets us work without stepping on each others' toes
- Keeps track of work put into the project via the commit log
- Write-up using T_EX; can be put in git too!
- Mature, stable infrastructure. . .

GitHub

- Service for maintaining a 'canonical' centralized repository
- Also provides communication services like an issue tracker or code comments (but we didn't use these)

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Concept

Domain

- **Snippets** are pieces of code in a particular language that somebody might want to insert into their program.
- **Boards** are organizational objects used to group snippets into semantically related sets, and apply permissions (to allow the system to be used with sensitive codebases).

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Requirements

Market Research

Features

- Code-oriented features like syntax highlighting and line numbering
- Ease of sharing
- Plausibility of editor integration

Competitors

- **GitHub Gists**, as well as pastebin sites like **pastebin.com**, are code-oriented and can be shared, but provide no API for editor integration.
- **Google Docs** can be shared, but is not designed for code, and has no friendly API for integration.
- **yasnipet** and similar snippet tools are integrated with the editor (often only one editor, and can't be reused between editors), but provide no means of sharing.

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Functional Requirements

Research

To get an idea of what users would want from such a system, if at all, we produced a **questionnaire**.

Formulation

Since we used Scrum, we found it easiest to specify our functional requirements directly as **user stories**. This also helped us verify our functional tests.

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Non-Functional Requirements

These were imposed on us by

- The university, the team, and the nature of the task
- The possibility that we might store sensitive data

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Implementation

Front-End

- We decided to create a Web-based user interface using **HTML5/CSS3/JavaScript** for ease of deployment
- jQuery was used for some special effects
- Backbone.js for communicating with the server when loading or storing data dynamically

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Back-End

- **Python** since it is already familiar to everyone in our group and has some good tools for rapid Web development
- **Django**, a well-respected MVC Web framework, provided an assortment of useful development tools
- **Django REST Framework**, for exporting a RESTful API from an application
- **PostgreSQL** is the most standards-compliant Free database we found
- But we also used **SQLite** for distributed development — Django makes the choice of SQL server mostly transparent

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Development Model

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Scrum

- Divide project up into flexibly-scheduled sprints — suits university schedule (exams &c.)!
- Respond rapidly to changing requirements as we discovered them

TDD

- Constantly check our code for errors
- Particularly important in Python, as we have no type system to guarantee invariants

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Scrum

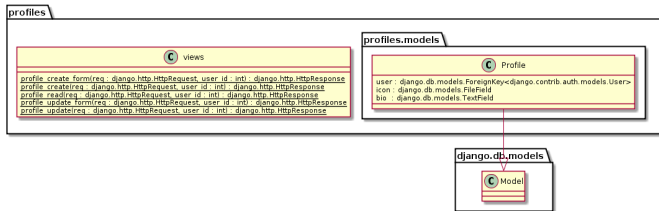
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Design

Class Diagrams



scripps

```

name: jessica, group: 10, id: 1, email: jessica@10.com, phone: 1234567890
name: alex, group: 10, id: 2, email: alex@10.com, phone: 9876543210
name: maria, group: 10, id: 3, email: maria@10.com, phone: 5678901234
name: david, group: 10, id: 4, email: david@10.com, phone: 3456789012
name: emma, group: 10, id: 5, email: emma@10.com, phone: 2345678901
name: noah, group: 10, id: 6, email: noah@10.com, phone: 8765432109
name: olivia, group: 10, id: 7, email: olivia@10.com, phone: 6543210987
name: liam, group: 10, id: 8, email: liam@10.com, phone: 4321098765
name: sophia, group: 10, id: 9, email: sophia@10.com, phone: 7654321098
name: ethan, group: 10, id: 10, email: ethan@10.com, phone: 1098765432
name: isabella, group: 10, id: 11, email: isabella@10.com, phone: 9012345678
name: jacob, group: 10, id: 12, email: jacob@10.com, phone: 8901234567
name: mia, group: 10, id: 13, email: mia@10.com, phone: 7890123456
name: jason, group: 10, id: 14, email: jason@10.com, phone: 6789012345
name: sarah, group: 10, id: 15, email: sarah@10.com, phone: 5678901234
name: michael, group: 10, id: 16, email: michael@10.com, phone: 4567890123
name: ashley, group: 10, id: 17, email: ashley@10.com, phone: 3456789012
name: daniel, group: 10, id: 18, email: daniel@10.com, phone: 2345678901
name: christina, group: 10, id: 19, email: christina@10.com, phone: 1234567890
name: joshua, group: 10, id: 20, email: joshua@10.com, phone: 0123456789
name: nicole, group: 10, id: 21, email: nicole@10.com, phone: 9012345678
name: kevin, group: 10, id: 22, email: kevin@10.com, phone: 8901234567
name: lauren, group: 10, id: 23, email: lauren@10.com, phone: 7890123456
name: andrew, group: 10, id: 24, email: andrew@10.com, phone: 6789012345
name: stephanie, group: 10, id: 25, email: stephanie@10.com, phone: 5678901234
name: brian, group: 10, id: 26, email: brian@10.com, phone: 4567890123
name: victoria, group: 10, id: 27, email: victoria@10.com, phone: 3456789012
name: jordan, group: 10, id: 28, email: jordan@10.com, phone: 2345678901
name: amy, group: 10, id: 29, email: amy@10.com, phone: 1234567890
name: jesse, group: 10, id: 30, email: jesse@10.com, phone: 0123456789
name: rachel, group: 10, id: 31, email: rachel@10.com, phone: 9012345678
name: tyler, group: 10, id: 32, email: tyler@10.com, phone: 8901234567
name: hannah, group: 10, id: 33, email: hannah@10.com, phone: 7890123456
name: nathan, group: 10, id: 34, email: nathan@10.com, phone: 6789012345
name: kyle, group: 10, id: 35, email: kyle@10.com, phone: 5678901234
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name: aaron, group: 10, id: 37, email: aaron@10.com, phone: 3456789012
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name: jesse, group: 10, id: 99, email: jesse@10.com, phone: 1234567890
name: rachel, group: 10, id: 100, email: rachel@10.com, phone: 0123456789

```

snippets, models

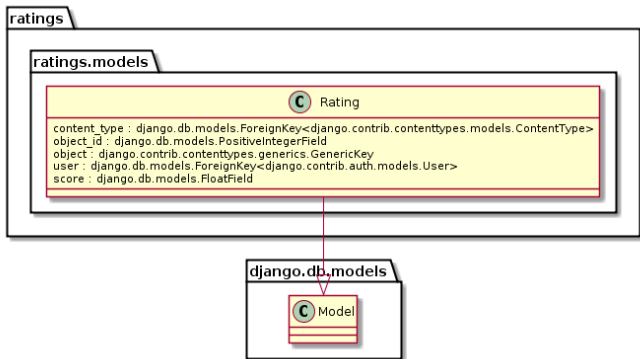
```
create django.db.models.ForeignKey=django.contrib.auth.models.User\ncreation_time = django.db.models.DateTimeField\nid = django.db.models.AutoField\ndescription = django.db.models.TextField\nboard = django.db.models.ForeignKey=Board\nrole = django.db.models.TextField\ntask = django.db.models.ManyToManyField=TaskManager\nreviewed_users = django.db.models.ManyToManyField=django.contrib.auth.models.User\nratings = django.db.models.ManyToManyField=GenericRelation=Ratings\naverage_rating() \n distribution_ratings() \ndistribution_
```

```
name : django.contrib.auth.models.DateField
owner : django.contrib.auth.models.Group.objects.contrib.auth.models.User
read_public : django.contrib.auth.models.BooleanField
write_public : django.contrib.auth.models.BooleanField
read_users : django.contrib.auth.models.ManyToManyField.objects.contrib.auth.models.User
write_users : django.contrib.auth.models.ManyToManyField.objects.contrib.auth.models.User
```

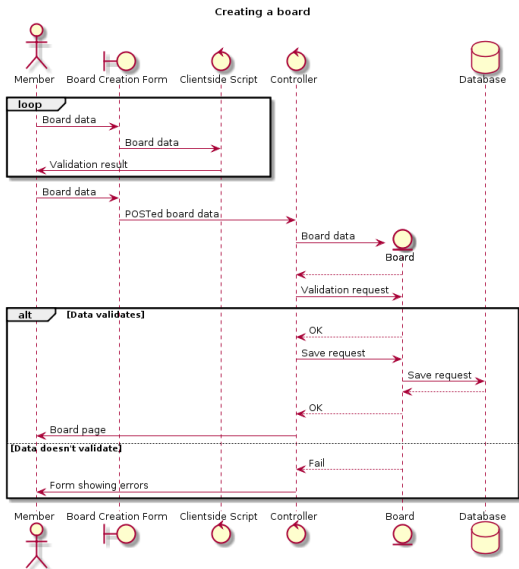
~~django.db.models~~

C Model

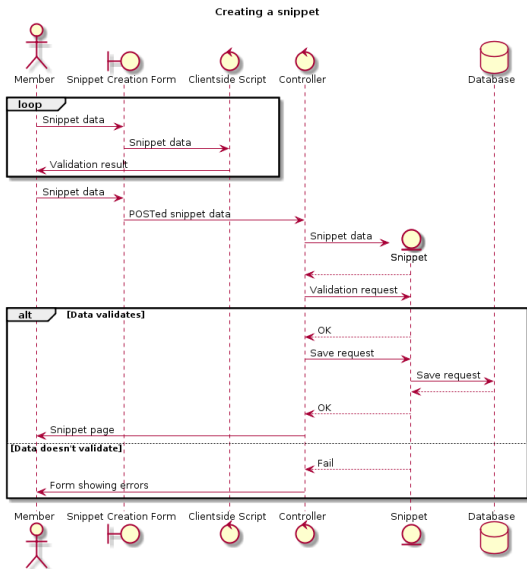
Class Diagrams



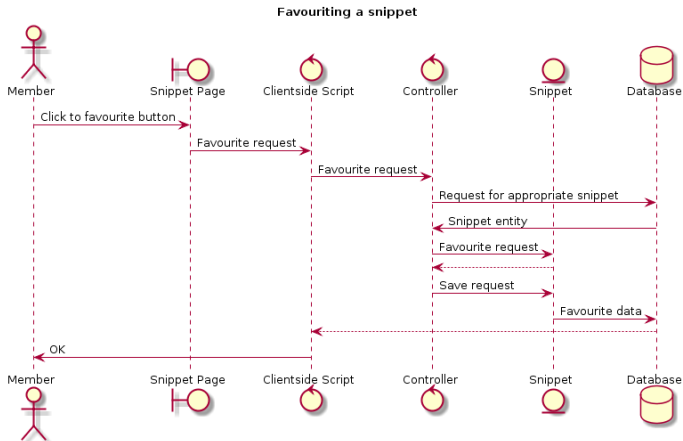
Sequence Diagrams



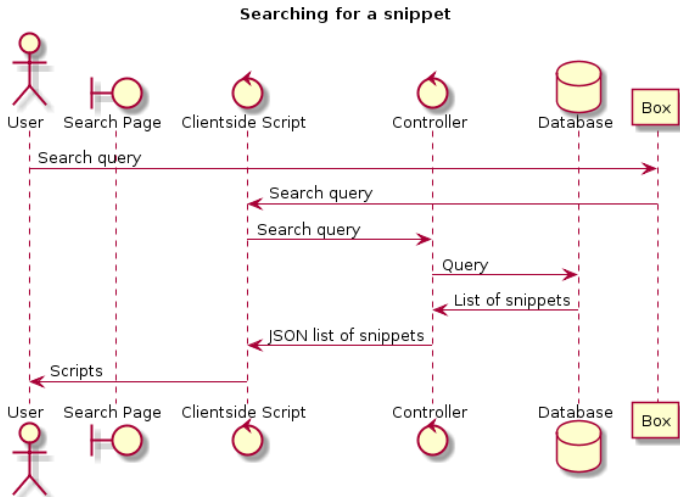
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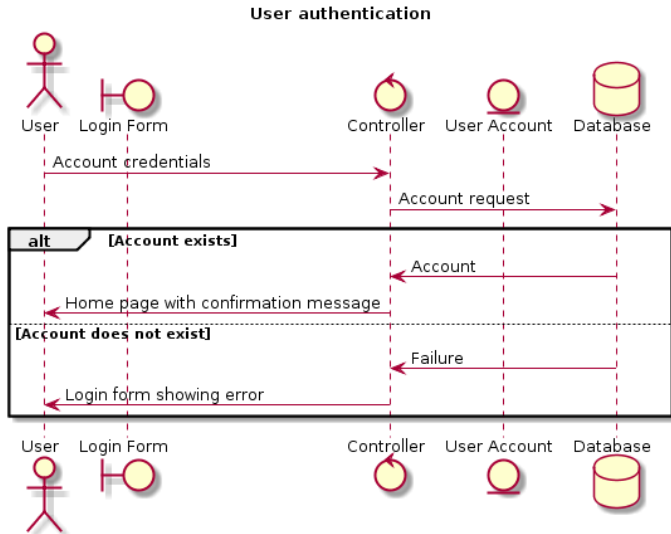
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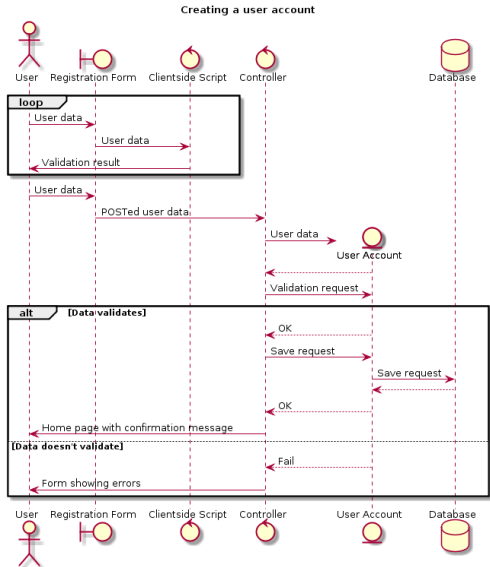
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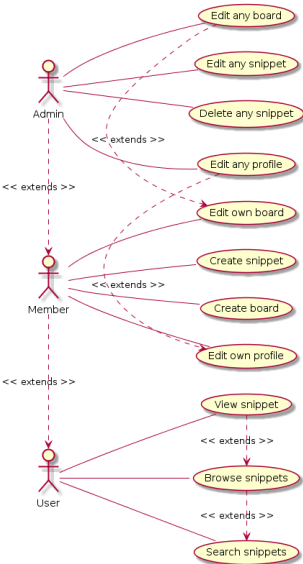
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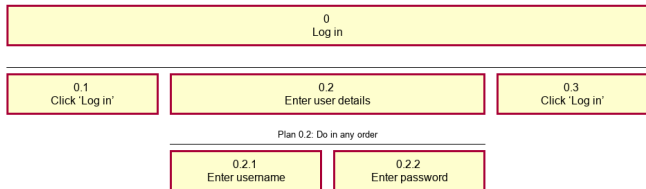


Use-Case Diagram



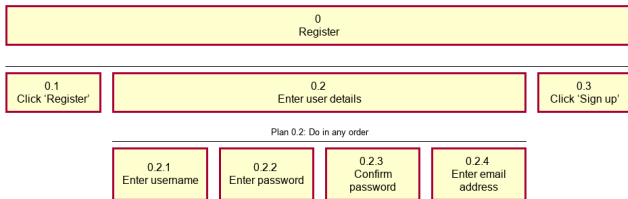
Hierarchical Task Analyses

Log In



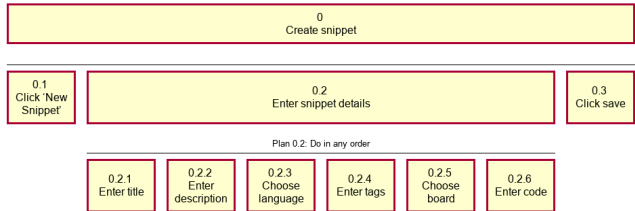
Hierarchical Task Analyses

Register



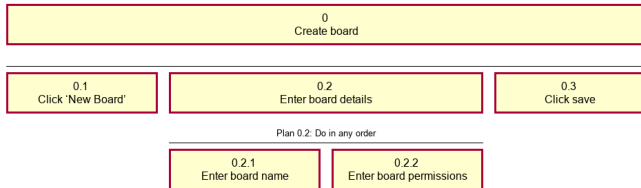
Hierarchical Task Analyses

Create Snippet

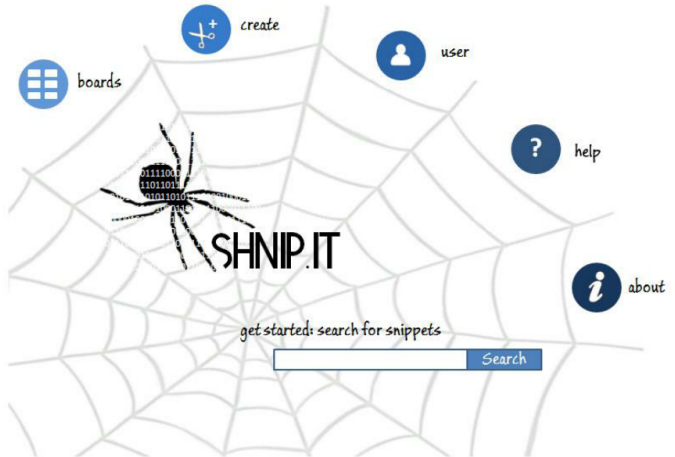


Hierarchical Task Analyses

Create Board



GUI Sketches



GUI Sketches



HELP PAGE

Small paragraph on how it's a shame they've had to end up here but that we hope we can answer questions through the help section



FAQs

FAQs will go in this section with their answers



CONTACT US

Information about contacting us including why they would want to contact and a link to the contact page

GUI Sketches



ABOUT THE TEAM

Information about the project team



ABOUT THE TEAM

Information about the project team



CONTACT US

Information about contacting us including why they would want to contact and a link to the contact page



GUI Sketches



CONTACT US

Small paragraph on why someone might want to contact us (suggestions/complaints/issues etc.)

Form for contacting the site:

Your name

Your email

Your message

GUI Sketches



PRIVACY POLICY

This page will be written information on the privacy policy each user is aware of when they register on the site.



GUI Sketches



ALREADY A MEMBER? LOGIN...

Username or
Email address

Password

Forgot your password? [Click here](#)

LOGIN

...NEW USER? REGISTER HERE!

Information about registering and pointing the user to the benefits listed below.

Username

Email address

Password

Retype password

REGISTER

By clicking register you accept our [privacy policy](#)

MEMBER BENEFITS

Information about the benefits members have

GUI Sketches

SHNIP.IT

You are logged in as randomusername (logout)

SEARCH SNIPPETS

BOARDS CREATE MARK HELP ABOUT

SEARCH TERM:

RATING:
Different ratings to choose from

SNIPPET AUTHOR:

LENGTH:
Different lengths of snippets to choose from


LANGUAGE:
Different languages to choose from

BOARD:

date added (ascending)

Grid of 9 placeholder cards (3x3).

GUI Sketches

 SHNIP.IT you are logged in as randomusername (logout)

DESIGN SKETCHES

BOARDSCREATEUSERHELPABOUT

CREATE A BOARD

Small paragraph on how to create the best board/ policy on boards

Small explanation of each of the sections to be filled in

Board Name

Description
(max 200 letters)

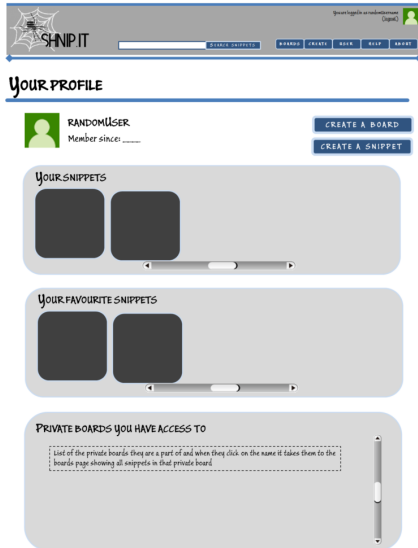
Privacy

Users allowed
access

CREATE



GUI Sketches



GUI Sketches



CREATE A SNIPPET


Small paragraph on how to create the best snippets / policy on snippets
Small explanation of each of the sections to be filled in

Snippet Title	<input type="text"/>
Description (max 200 letters)	<input type="text"/>
Language	<input type="text"/>
Tags	<input type="text"/>
Add to...	<input type="text"/>
Content	<input type="text"/>

ADD

The form is contained within a rounded rectangle. It consists of six input fields for Snippet Title, Description (with a character limit), Language, Tags, Add to..., and Content. An 'ADD' button is located at the bottom right of the form area.

GUI Sketches

 SHNIP.IT

You are logged in as randomUsername
(logout)

SEARCH SNIPPETS

BOARDS

CREATE

BOOK

HELP

ABOUT

SNIPPETNAME

Snippet description

--RATING--
Author:
 randomAuthor

Snippet content

RATE SNIPPET:

ADD TO FAVOURITES

Video

Testing

Functional Testing

Formulation

- Derived directly from functional requirements
- Powerful means of validation!

Implementation

- **Django** provides a framework for running tests against a live server instance
- Used the **Selenium** Web driver with the **PhantomJS** headless browser to test through the frontend exactly as the user would see it

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- **Django** provides a framework for running tests against a live server instance
- Used the **Selenium** Web driver with the **PhantomJS** headless browser to test through the frontend exactly as the user would see it

Unit Testing

- **Python** provides a unit testing framework.
- **Django**'s MVC architecture reduces coupling and makes it possible to test individual components separately from the rest of the system.

Evaluation

Conclusion

Questions?