



Cheetah

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Agenda

- Project Vision
- Functionality
- Team Roles
- SRS
- Use Cases
- Shortterm planning
- Longterm planning
- Metrics
- Risk Management
- Unittesting
- CI - Travis
- SAD
- Class Diagramm
- Pattern
- Software and Tools
- Environment

Project Vision

- Webapplication to improve learning
- Students should be able to upload and write test from their memories or any other source, so that the following students can learn from those tests
- Tests are categorized by university, course and lecturer
- Project Cheetah => Cheater

Functionality

- User Login
- Ability for users to add universities, courses and lecturers
- Upload and view of pictures and PDFs
- Create text files directly in the application
- Paint function
- Search function
- Comment function
- Report of abuse function
- Camera integration for smartphones



Team Roles

- Project Manager - Sara
- Tool Specialist - Damian, Sara
- Implementer - Damian
- Tester/Test Designer - Lior
- Designer - Damian, Lior and Sara

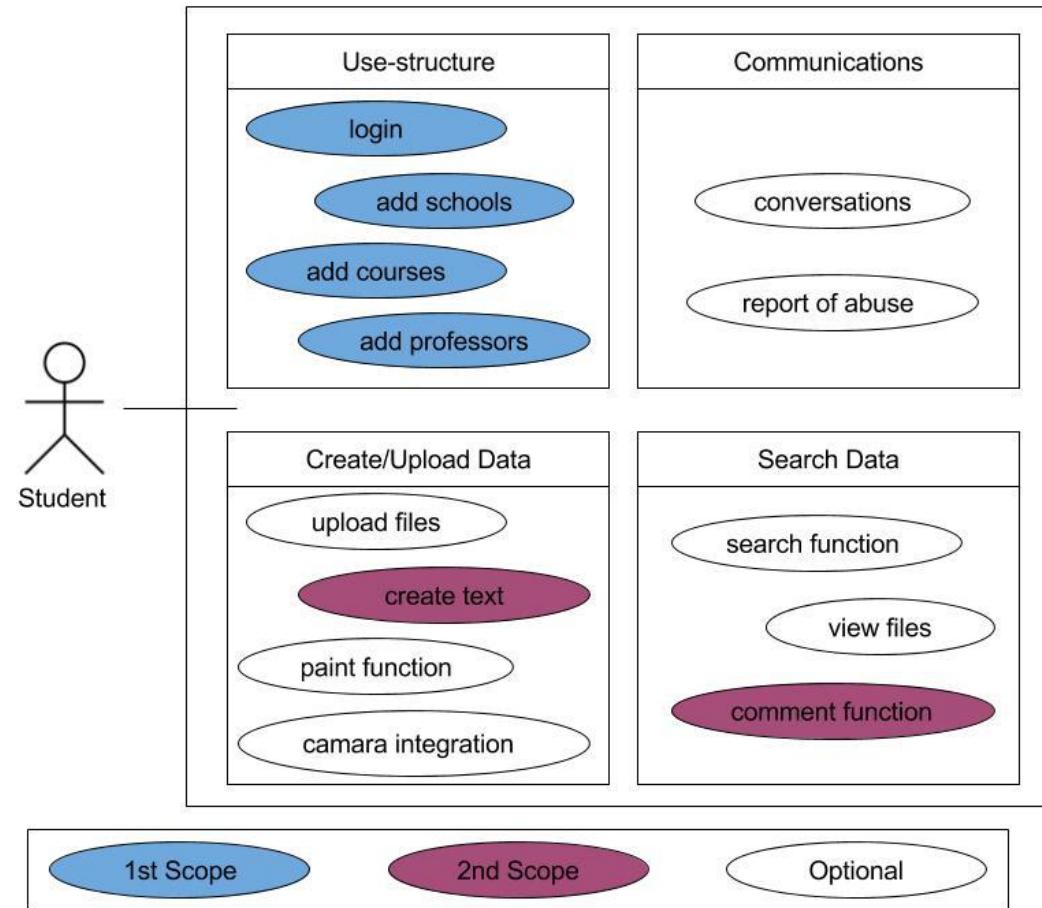


Software Requirement Specification

- The first specification for the project
 - what the project should include
 - get better view what the client wants/needs
 - show the client what we understood
 - our scope

Software Requirement Specification

Overall Use Case Diagram





Use Cases

- Activity Diagram with MS Visio
 - easy to use
 - has the right shapes for activity diagram
 - offline usage possible
 - support
- Mock up with Balsamiq
 - easy to use, automated saving
 - offline usage possible
 - support

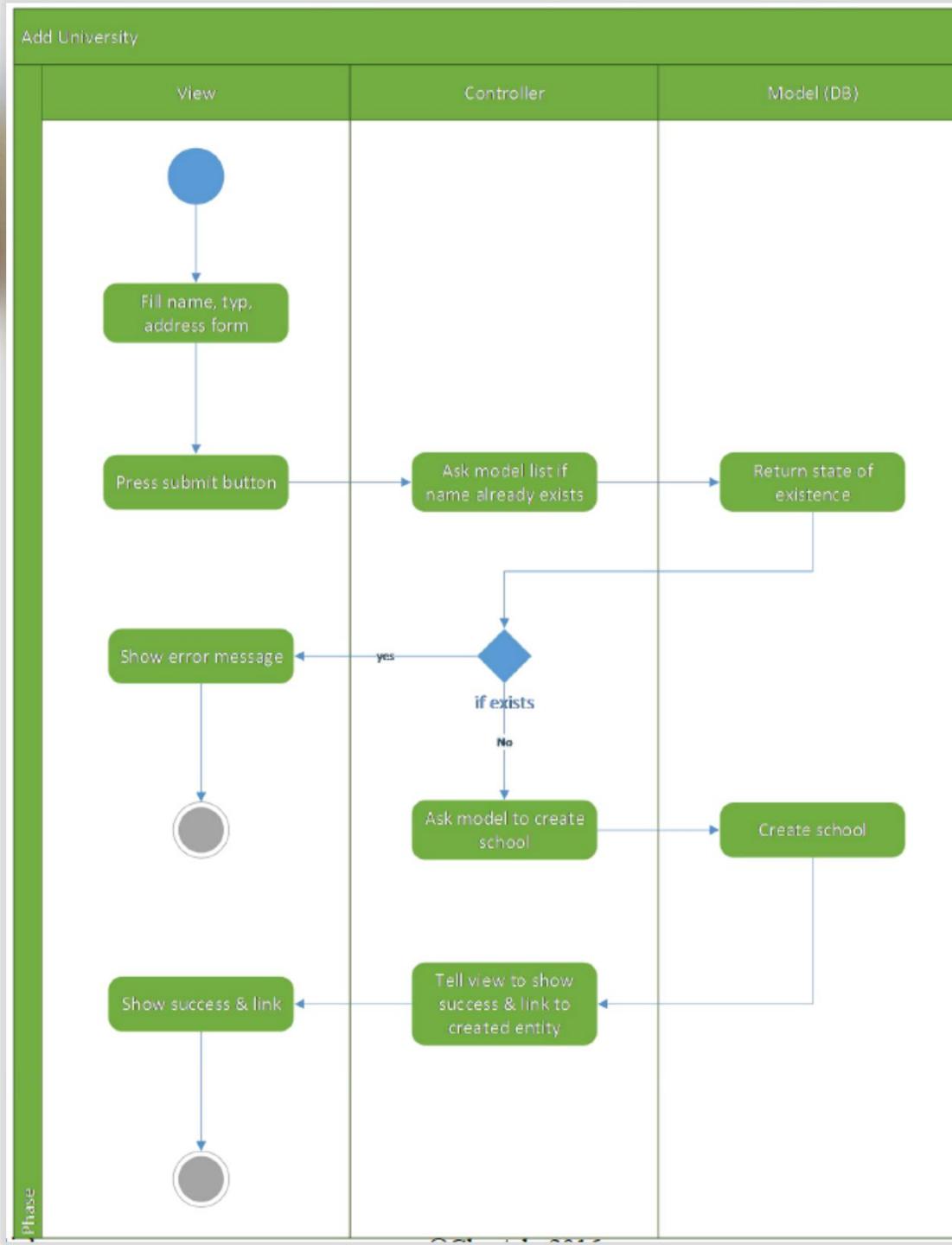


Use Cases

- Activity Diagram
 - To show the client how the process works in a visual way
 - To help us program the process in the right way
- Mock up
 - So the client can see a visualization of the endproduct and give us feedback
 - To let us know how to design the frontend of the application

Use Cases

- Add University
 - Activity Diagram



Use Cases

- Mock up

Project Cheetah

Add University

Name:

Typ:

Street: No:

ZIP: City:

Submit

Project Cheetah

Add University

Error
Institution already exists, please search for it
in the universitieslist.

Project Cheetah

Add University

Institution has been created successfully!
Added entity:
[DHBW Karlsruhe](#)



Jira - Short term planning

- Agile methodology
 - Agile: It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change.
- Jira - Scrum Board
 - Scrum: flexible, holistic product development strategy where a development team works as a unit to reach a common goal.
=> Clients can change their minds of what they need and want
- Burndown Diagram
 - To see the work process (time countdown for sprints)

SCHNELL-FILTER: Nur meine Vorgänge

Zuletzt aktualisiert

Aufgaben

In Arbeit

Fertig

 CHEET-34

↑ Preparing for Presentation

Requirements

2h

 CHEET-15

↑ Implementation Add Course

Implementation

0m

 CHEET-32

↑ Upgrade design

Analysis & Design

1h

 CHEET-33

↑ Finishing Environment for midterm

Environment

0m

 CHEET-18

↑ Implementation Add Lecturer

Implementation

0m

 CHEET-35

↑ Testing for Demo

Test

0m

 CHEET-11

↑ Implementation Add University

Implementation

13

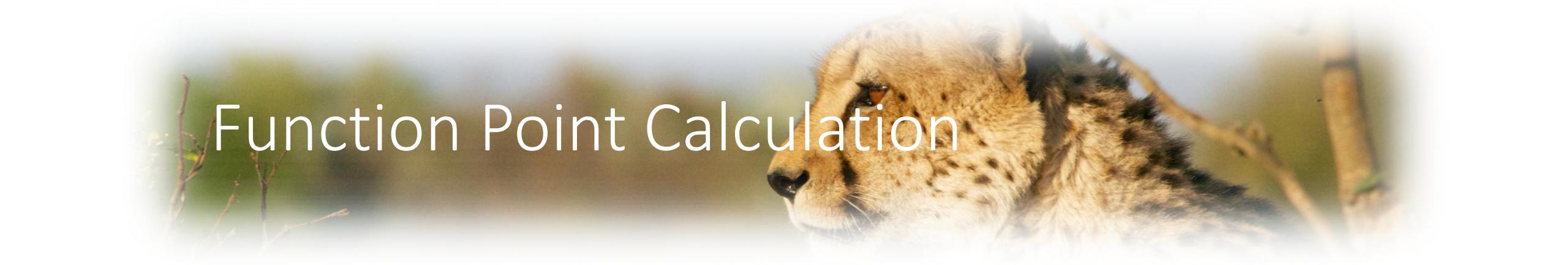
0m





Long term planning

- Why MS Project?
 - Long term planning tool
 - many diagrams to calculate ressources, costs and time
 - easy integration with other MS Products
 - support and reliability
 - offline usage possible
 - to create the Gantt Chart
- Why Function Point Calculation?
 - knowing the future
 - once done, easy to keep it



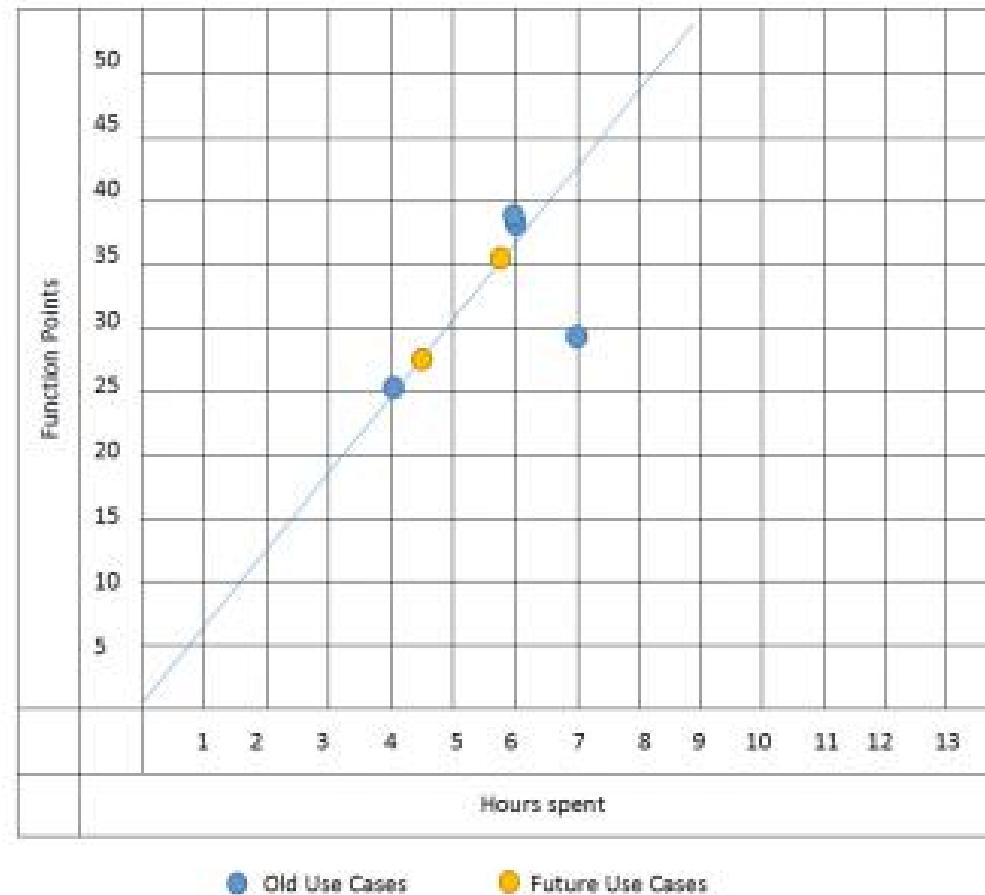
Function Point Calculation

- calculate the future

	Estimation	RET (Reco)	DET (Data)	FTR (File)	Complexity	Count	RET	DET	FTR
UC1 LOG IN									
EI (External Inputs)			1	1	LOW			remember button	saved table
EO (External Output)									
EQ (External Queries)			3	1	LOW			User field, password field, submit button	saved table
ILF (Internal Logical Files)		1	2		LOW		database	user, password columns	
EIF (External Interface Files)									
	4 h					25,35			
UC2 ADD UNIVERSITY									
EI (External Inputs)			3	1	LOW			name, address, type field	saved table
EO (External Output)			3	1	LOW			name, address, type	saved table
EQ (External Queries)			1		LOW			submit button	
ILF (Internal Logical Files)		1	3		LOW		database	name, address, type columns	
EIF (External Interface Files)									
	6 h					38,35			

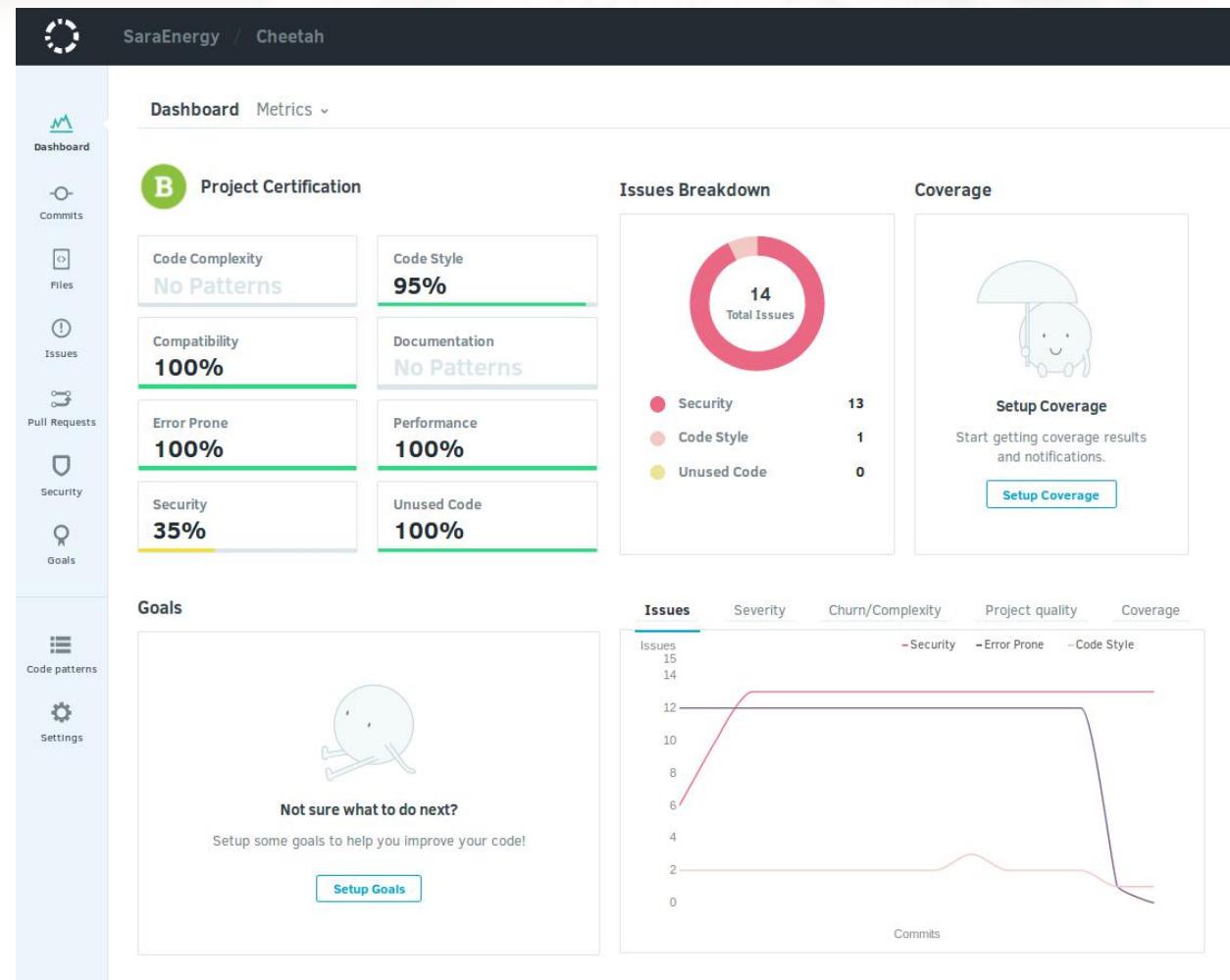
Function Point Calculation

- calculate the future



Metrics

- Analysing software for measuring a degree
- we used Codacy
- why Codacy
 - easy to use
 - online tool
 - uses github code



Metrics - error



SaraEnergy / Cheetah

Ignore File

Dashboard

Commits

Files

Issues

Pull Requests

Security

Goals

Code patterns

Settings

app/controllers/application_controller.rb

TIME TO FIX: 5 minutes [View on GitHub](#)

Size	Structure	Complexity	Duplication
Lines of code: 24	Number of Classes: 19	Complexity: 0	Number of Clones: 3
Source lines of code: 19	sLoC / Class: 1	Complexity / Class: 0	Duplicated lines of code: 0
Commented lines of code: 1	Number of Methods: 1	Complexity / Method: 0	Churn: 0
	sLoC / Method: 1		

Issues 1

```
1 class ApplicationController < ActionController::Base
2   protect_from_forgery with: :exception
3
4   #is used to give sites with no loginaccess another layout
5   layout :layout_by_resource
6   protected
7   def layout_by_resource
8     if devise_controller? && action_name == "new"
9       "no_login"
10    else
11      "application"
12    end
13  end
14
15 before_action :configure_permitted_parameters, if: :devise_controller?
16
17 Useless 'protected' access modifier.
18 protected
19 def configure_permitted_parameters
20   addedAttrs = [:username, :email, :password, :password_confirmation, :remember_me]
21   devise_parameter_sanitizer.permit :sign_up, keys: addedAttrs
22   devise_parameter_sanitizer.permit :account_update, keys: addedAttrs
23 end
24 end
```

Copy

Metrics - fixed error



SaraEnergy / Cheetah

app/controllers/application_controller.rb

View on GitHub Ignore File

Dashboard

Commits

Files

Issues

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Size

Lines of code:	23	Number of Classes:	0	Complexity:	3	Number of Clones:	0
Source lines of code:	18	sLoC / Class:	0	Complexity / Class:	0	Duplicated lines of code:	0
Commented lines of code:	1	Number of Methods:	0	Complexity / Method:	0		
		sLoC / Method:	0	Churn:	1		

Structure

Complexity

Duplication

Issues 0

```
1 class ApplicationController < ActionController::Base
2   protect_from_forgery with: :exception
3
4   #is used to give sites with no loginaccess another layout
5   layout :layout_by_resource
6   protected
7   def layout_by_resource
8     if devise_controller? && action_name == "new"
9       "no_login"
10    else
11      "application"
12    end
13  end
14
15  before_action :configure_permitted_parameters, if: :devise_controller?
16
17  def configure_permitted_parameters
18    addedAttrs = [:username, :email, :password, :password_confirmation, :remember_me]
19    devise_parameter_sanitizer.permit :sign_up, keys: addedAttrs
20    devise_parameter_sanitizer.permit :account_update, keys: addedAttrs
21  end
22
23 end
```

More Code



Risk Management

- See main problems of project
- Concentrate on the problems with the highest risk factor
- needs to be updated constantly

Risk Management

Comparison
beginning

vs end

Risk Name	Risk Description	Risk Probability of Occurrence %	Risk Impact	Risk Factor	Risk Mitigation	Person in Charge of Tracking
unrealistic estimation	not enough time	60	10	6	smaller goals, work concentrate	together
long requirements catalogue	not able to complete all requirements	60	10	6	reduce amount of requirements	together
technical impossibilities	difficult to implement	80	6	4,8	find work around	together
Staff size and experience	no experience	70	4	2,8	gain experience	together
deficit with external components	not supported tools	50	2	1	find work around / use another tool	together
development environment	failure of environment	20	10	2	fix it	Damian
Deficit in performance ability of software	slow hardware	80	1	0,8	buy new Hardware	Lior

Risk Name	Risk Description	Risk Probability of Occurrence %	Risk Impact	Risk Factor	Risk Mitigation	Person in Charge of Tracking
unrealistic estimation	not enough time	30	10	3	smaller goals, work concentrate	Sara
long requirements catalogue	not able to complete all requirements	30	10	3	reduce amount of requirements	Sara
technical impossibilities	difficult to implement	60	6	3,6	find work around	Lior
Staff size and experience	no experience	50	4	2	gain experience	Sara
deficit with external components	not supported tools	40	2	0,8	find work around / use another tool	Damian
development environment	failure of environment	20	10	2	fix it	Damian
Deficit in performance ability of software	slow hardware	70	1	0,7	buy new Hardware	Lior

Unit testing

Ruby testing

With errors



A screenshot of the RubyMine IDE interface. The title bar shows "Cheetah_3 - ~/RubymineProjects/Cheetah_3 - .../test/controllers/testhome_controller_test.rb - RubyMine 2017.1.3". The main window displays a terminal output showing multiple test failures. The terminal window title is "All tests in test: Cheetah". The output starts with "require 'test_helper'" and ends with "Process finished with exit code 0". The error messages are repeated multiple times, indicating failures in various controller tests.

```
require 'test_helper'

Minitest::UnexpectedError: ArgumentError: Invalid response name: successesd
  test/controllers/lecturers_controller_test.rb:16:in `block in <class:LecturersControllerTest>'
  test/controllers/lecturers_controller_test.rb:16:in `block in <class:LecturersControllerTest>'

Minitest::UnexpectedError: ArgumentError: Invalid response name: successesd
  test/controllers/lecturers_controller_test.rb:6:in `block in <class:LecturersControllerTest>'
  test/controllers/lecturers_controller_test.rb:6:in `block in <class:LecturersControllerTest>'

Minitest::UnexpectedError: ArgumentError: Invalid response name: successesd
  test/controllers/text_controller_test.rb:26:in `block in <class:TextControllerTest>'
  test/controllers/text_controller_test.rb:26:in `block in <class:TextControllerTest>'

Minitest::UnexpectedError: ArgumentError: Invalid response name: successesd
  test/controllers/text_controller_test.rb:21:in `block in <class:TextControllerTest>'
  test/controllers/text_controller_test.rb:21:in `block in <class:TextControllerTest>'

Minitest::UnexpectedError: ArgumentError: Invalid response name: successesd
  test/controllers/text_controller_test.rb:31:in `block in <class:TextControllerTest>'
  test/controllers/text_controller_test.rb:31:in `block in <class:TextControllerTest>'

Finished in 1.29830s
30 tests, 12 assertions, 0 failures, 15 errors, 0 skips

Process finished with exit code 0
```

Unit testing

Ruby testing

Without errors



A screenshot of the RubyMine IDE interface. The title bar shows "Cheetah_3 - ~/RubymineProjects/Cheetah_3 - testhome_controller_test.rb - RubyMine 2017.1.3". The menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help. The toolbar has icons for Open, Save, Run, Stop, and others. The main window shows a project tree for "Cheetah_3 [Cheetah] ~/RubymineProjects/Cheetah_3" with files like exams_controller_test.rb, lecturers_controller_test.rb, text_controller_test.rb, courses_controller_test.rb, and testhome_controller_test.rb. A "Console" tab is active, displaying the output of a test run: "All 30 tests passed - 1s 215ms". The output lists 14 test files and their results, followed by "14 files were loaded.", "Running tests...", "Started", "Finished in 1.26200s", "30 tests, 28 assertions, 0 failures, 0 errors, 0 skips", and "Process finished with exit code 0". The bottom status bar shows "Tests Passed: 30 passed (moments ago)", "6:30 LF: UTF-8: Git: Unittesting:", and "Event Log".

CI - Travis

Continuous Integration

- version control system
- automated build server

Why?

- prevent integration problems
- early warnings from errors
- automated unit tests

CI - Travis

Travis - Continuous Integration

With errors



The screenshot shows the Travis CI web interface. At the top, there's a navigation bar with links for "Travis CI", "Blog", "Status", and "Help". On the right side of the header, there's a user icon for "LiorEnergy" and a green Jenkins logo.

The main area displays a repository named "Damian1234523 / Cheetah". Below the repository name, it says "Build #33". The build status is shown as "build error".

The build log is displayed in a large text area. It starts with "travis just a test" and ends with "rvm 1.26.10 (latest-minor) by Wayne E. Seguin <wayneeseguin@gmail.com>, Michal Papis <mpapis@gmail.com> [https://rvm.io/]".

Below the log, there are sections for "Job log" and "View config". At the bottom right of the log area, there are buttons for "Remove log" and "Raw log".

On the left side of the interface, there's a sidebar titled "My Repositories" showing two entries: "Damian1234523/Cheetah" (Duration: 2 min 36 sec) and "LiorEnergy/Jenkins-Test" (Duration: -).

CI - Travis

Travis - Continuous Integration

without errors



The image shows the Travis CI web interface. At the top, there's a navigation bar with links for 'Travis CI' (with a logo), 'Blog', 'Status', and 'Help'. On the right side of the header, there's a user icon for 'LiorEnergy' and a green checkmark icon.

The main area displays a repository named 'Damian1234523 / Cheetah'. Below the repository name, there are tabs for 'Current', 'Branches', 'Build History', 'Pull Requests', 'Build #38', and 'Job #38.1'. The 'Job #38.1' tab is currently selected.

The job details for 'Job #38.1' show a green checkmark icon followed by the text 'travis just another test'. It includes a commit log entry: 'Commit 6a4be28', 'Compare 3448dc0..6a4be28', and 'Branch travis'. It also notes that 'LiorEnergy authored and committed'.

To the right of the job details, there's a message '#38.1 passed' with a timestamp 'Ran for 2 min 23 sec' and 'about 4 hours ago'. There are also 'More options' and 'Restart job' buttons.

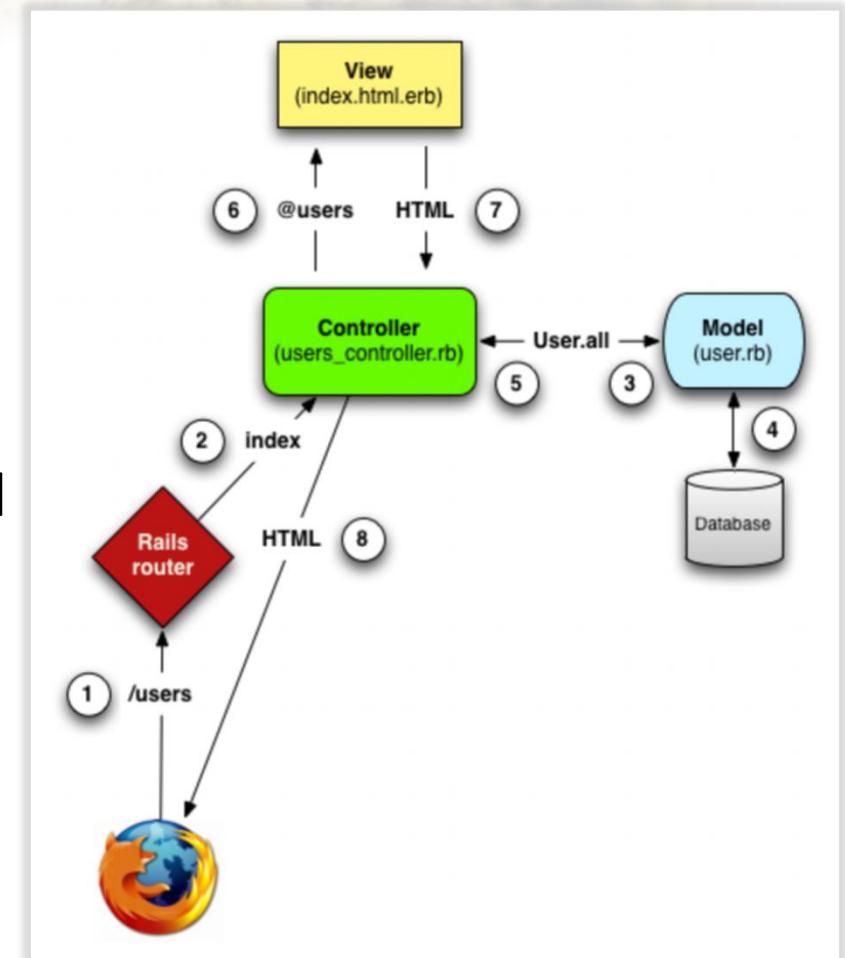
At the bottom, there are two tabs: 'Job log' (selected) and 'View config'. The 'Job log' tab shows a terminal-like log output:

```
▶ 1 Worker information
▶ 6 Build system information
73
▶ 74 $ export DEBIAN_FRONTEND=noninteractive
▶ 110 $ sudo apt-get install libssl1.0.0
▶ 134 $ git clone --depth=50 --branch=travis https://github.com/Damian1234523/Cheetah.git Damian1234523/Cheetah
▶ 145 $ sudo service mysql start
▶ 148 $ rvm use 2.3.1 --install --binary --fuzzy
174 $ export BUNDLE_GEMFILE=$PWD/Gemfile
175 $ ruby --version
176 ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
177 $ rvm --version
178 rvm 1.26.10 (latest-minor) by Wayne E. Seguin <wayneeseguin@gmail.com>, Michal Papis <mmpapis@gmail.com> [https://rvm.io/]
179 $ bundle --version
```

On the right side of the log, there are performance metrics: 'worker_info' (fix.CVE-2015-7547, update.libssl1.0.0), 'system_info' (git.checkout 1.29s, services 0.01s, rvm 23.40s), and a 'Raw log' button.

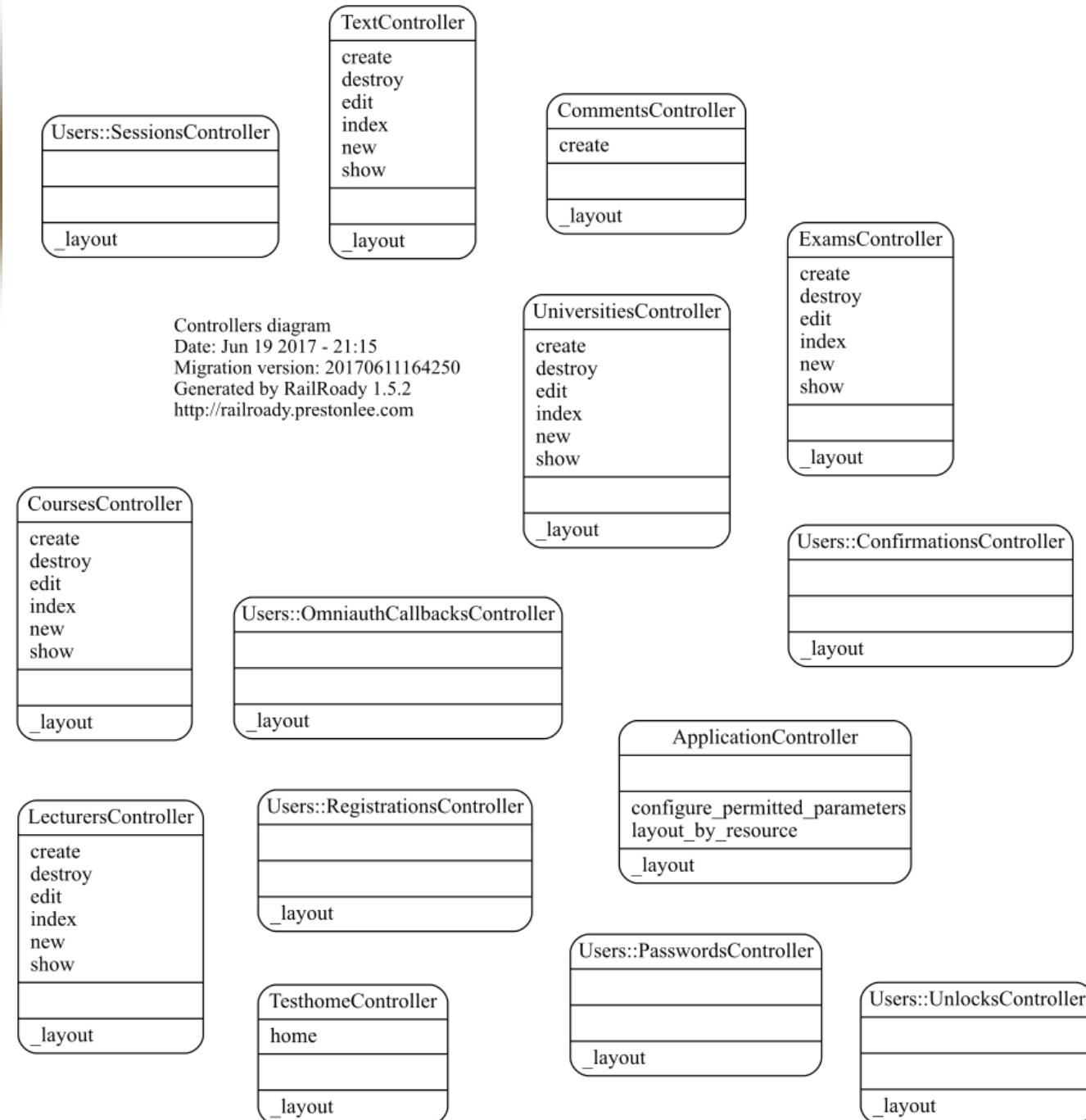
SAD

- **MVC (Model–view–controller) for Ruby**
 - software design pattern
 - divides a software application into 3 interconnected parts, so as to separate internal representations of information from the ways that information is presented to or accepted from the user.



Class Diagram

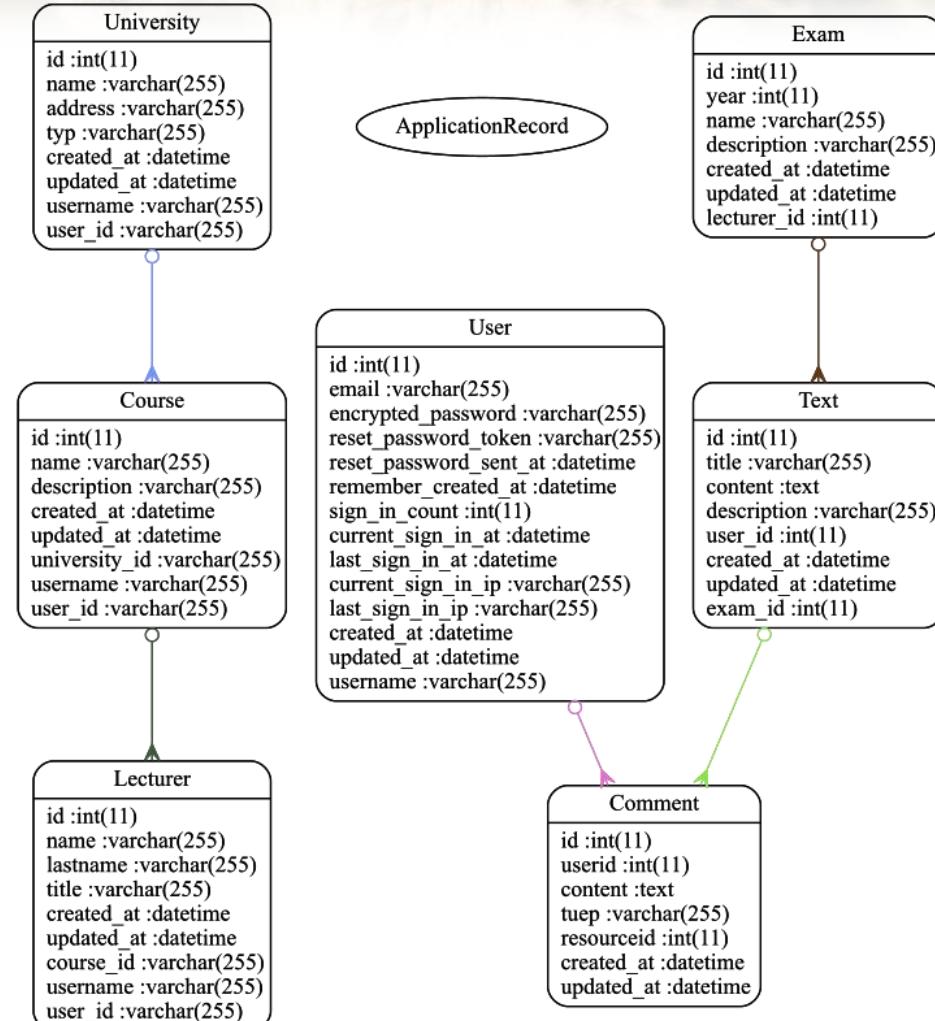
- Controller/View



Class Diagram

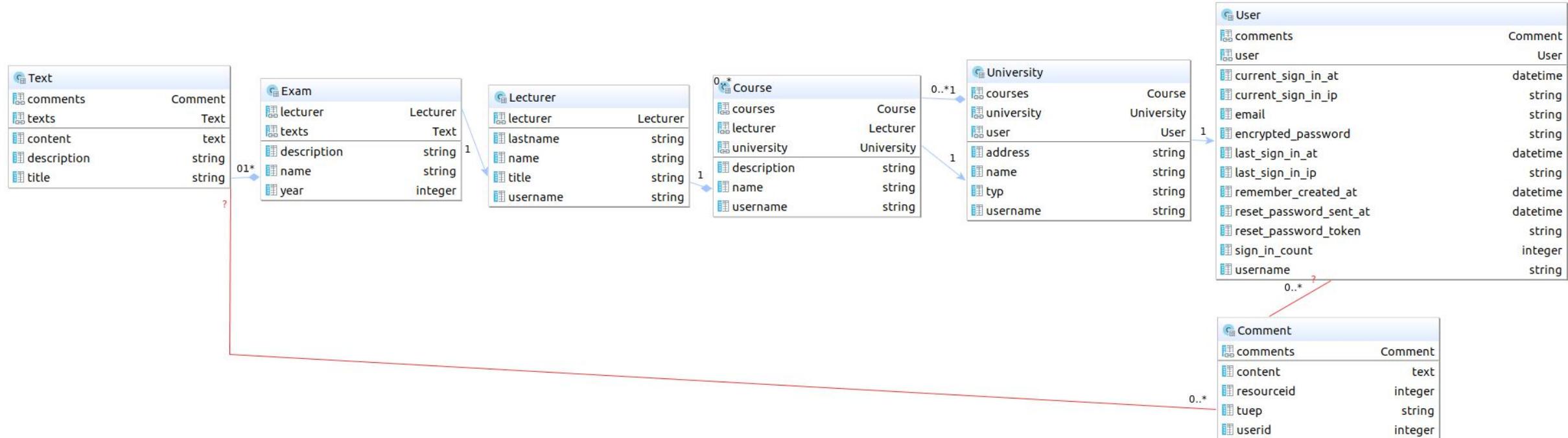
- Modell

Models diagram
Date: Jun 19 2017 - 21:15
Migration version: 20170611164250
Generated by RailRoady 1.5.2
<http://railroadystatic.prestonlee.com>



Class Diagram

- Modell

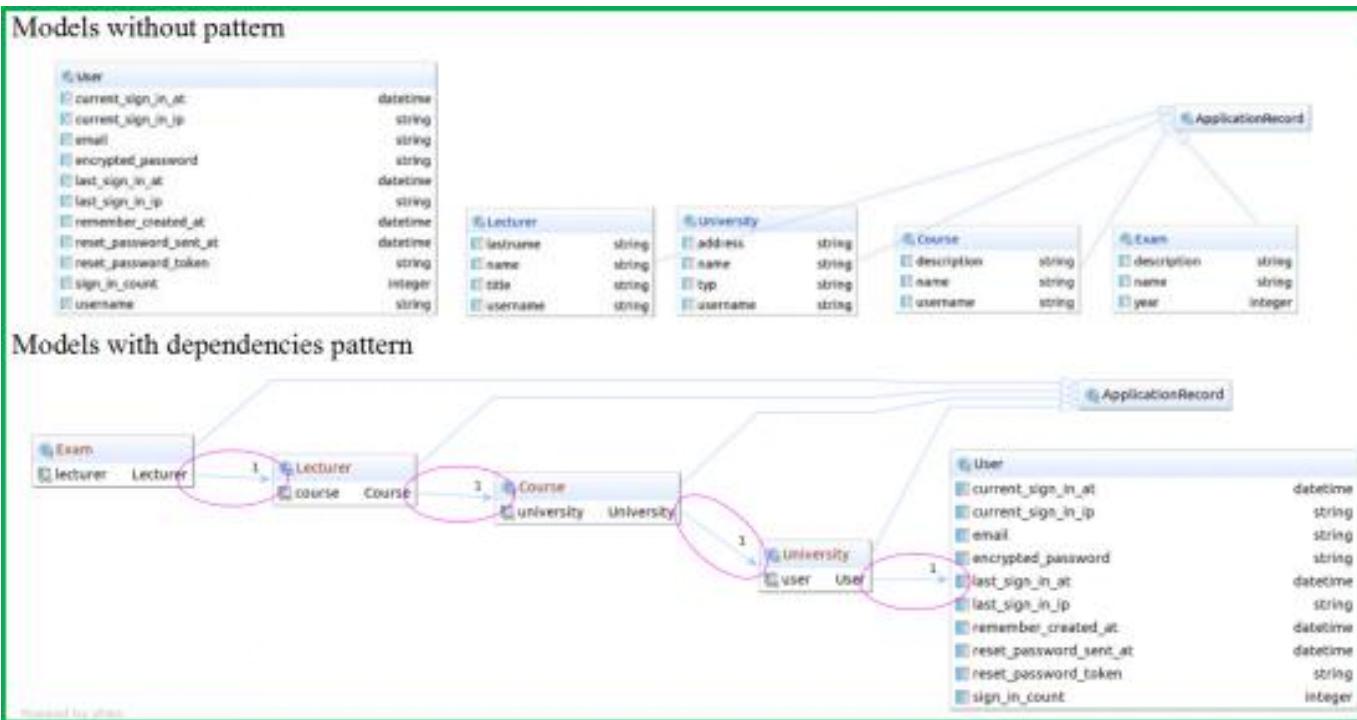


Class Diagram

DB-Shema



Pattern





Software & tools

- Ruby with the Ruby on Rails Framework
- Rubymine as IDE
- MySQL Database
- Github as Version Control
- Jira - Sprints
- MS Project - Long term planning
- MS Visio
- Codacy for Metrics
- Travis for Testing



Environment

- Front End
 - Webbrowser
- Back End
 - Ruby on Rails
 - MySQL Database
- For now all installed in a Virtual Machine



Thank you!