ADVANCED SOFTWARE DESIGN
LECTURE 1
INTRODUCTION

Dave Clarke
CONTENTS

• Practical Matters
• Course overview – topics, text book
• Project
• Achievement-driven approach to learning
• Wordfeud – In-class design exercise
• Forming groups
ARE YOU REGISTERED?

• Admitted students must web-register themselves for this course in the Student Portal.

• Students who are unable to web-register (or who were registered before) should contact the Student Office (it-kansli@it.uu.se).

• Do this as soon as possible! You will be able to web-register until November 10 at the latest.
DROPPING COURSES

• If you decide to drop it, you must inform the Student Office (it-kansli@it.uu.se).

• If less than 3 weeks have passed since the course started, your course registration will be removed.

• After 3 weeks a “course intermission” will be reported to UPPDOK instead.
EMAIL ADDRESS

• If your email is broken –mailbox full, etc–, you will miss crucial information.

• Failing to exist is not an excuse for failure.
COURSE WEB PAGE
http://www.it.uu.se/edu/course/homepage/asd/ht14
COURSE OVERVIEW
TOPICS COVERED

• Design principles (GRASP)
• Domain Modelling
• Structural Modelling
• Software Architecture
• Behavioural modelling
• Design Patterns
• Design evaluation and improvement
TEXTBOOK AND REFERENCES

- Applying UML and Patterns
- Design Patterns
- Refactoring: Improving the Design of Existing Code
- Anti Patterns
PROJECT
PROJECT

• Design and partial implementation of DungeonQuest board game (with various extensions)

• Groups of 5 (ideally) or 4.

• Design core of program plus some extensions.

• Implement part of it.

• No expectation that you will complete it
MEETINGS WITH TAS

- Weekly meetings with TAs:
  - discuss issues that arise in lectures
  - discuss project, obtain feedback
  - be assessed – ongoing
• Volume produced is not what will be measured.

• Rather, understanding and application of design processes and design principles, response to feedback, improvement of design, evaluation of others’ design.

• Assessment based on achievement-driven learning
ACHIEVEMENT-DRIVEN LEARNING
ACHIEVEMENT-DRIVEN LEARNING

• A new assessment approach based on a fine-grained breakdown of learning outcomes.

• Detailed list of learning outcomes (*achievements*) known in advance.

• Students need to work towards demonstrating achievements.

• Different achievements required for 3, 4, and 5 – higher grades require deeper levels of mastery, not more stuff.
C Domain Modelling

<table>
<thead>
<tr>
<th>Goal</th>
<th>Level</th>
<th>ILO</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construct a valid domain model of the core elements of the software under design.</td>
<td>3</td>
<td>ILO-C</td>
</tr>
</tbody>
</table>

*Criteria.* Answer includes the most important domain elements and most important relationships between them, with few spurious elements and relationships.

*Documents.* Domain model.
THE PROCESS

• You need to have a plan
• You decide how to convince us that you have unlocked an achievement
• TA will determine whether we agree – usually during weekly meeting.
• Achievements are individual
  • when discussing with a TA need all members of team to participate
  • missing meeting may mean missing/delayed opportunity
• Some time scheduled later in course to tick-off achievements.
EXPECTATIONS

• Don’t leave everything until the end
• Do research to find out how to do things – teach your team!
• Keep your group alive and active – or quickly get a new one
• Do not try to do too much (or too little)
• Structure your work towards ticking-off achievements
• Tick off multiple achievements with a single demonstration.
ACHIEVEMENT TRACKER

HTTP://UU-ASD.HEROKUAPP.COM/
OR
HTTP://TINYURL.COM/ADVANCEDSOFTWAREDESIGN
IN-CLASS DESIGN EXERCISE
Playing with simon downie
English game (Int) started 18 Oct 22:35
simon downie played FEZ for 25 points

Playing with Alex
English game (Int) started 19 Oct 07:03
Alex played EH for 28 points

Playing with barkeman
English game (Int) started 18 Oct 22:39
barkeman played AX for 14 points

Their Turn
Playing with DelaGul
English game (Int) started 18 Oct 21:35
You played OXY for 14 points

Playing with vacvac
English game (Int) started 16 Oct 22:35
You played UTE for 32 points

Finished Games
You lost against venom007
English game (Int) started 18 Oct 22:33
You played DANT for 11 points

You won against GrannyT1
English game (Int) started 18 Oct 21:24
GrannyT1 resigned

You lost against simon dow...
Profile

supercooldave

Game Options

Confirm Play
Ask for confirmation before submitting a word

Blocked Users

Help
Learn how to play Wordfeud

v2.8.3
Statistics are grouped by board type and dictionary language.

**Overall statistics**
Any board, any dictionary

**Standard board**

- English (International)

**Random board**

- Dutch
- English (International)
- English (US)
- Swedish
<table>
<thead>
<tr>
<th>Event</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall statistics</td>
<td>Any board, any dictionary</td>
</tr>
<tr>
<td>Games won</td>
<td>596</td>
</tr>
<tr>
<td>Games lost</td>
<td>211</td>
</tr>
<tr>
<td>Games tied</td>
<td>2</td>
</tr>
<tr>
<td>Games resigned</td>
<td>1</td>
</tr>
<tr>
<td>Games timed out</td>
<td>0</td>
</tr>
<tr>
<td>Highest game score</td>
<td>930</td>
</tr>
<tr>
<td>Highest move score</td>
<td>648</td>
</tr>
</tbody>
</table>

- **Longest word**: ENCOURAGES
- **Average Word Score**: 13
- **Average Move Score**: 23
- **Average Game Score**: 364
- **Most bingos in one game**: 2
- **Total number of bingos**: 43

A bingo is a move using all seven tiles.

- **Friend statistics**

Statistics are calculated for games started February 16 2013 or later.
English (International)
Random board

Games won 586
Games lost 200
Games tied 2
Games resigned 0
Games timed out 0

Skill rating 1824

Highest game score 930
Highest move score 648
Highest scoring word VENDIS (648 points)
Longest word ENCOURAGES
Average Word Score 13
Average Move Score 23
Average Game Score 366
Most bingos in one game 2
Total number of bingos 41
| Statistics                                | Value  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Longest word</td>
<td>ENCOURAGES</td>
</tr>
<tr>
<td>Average Word Score</td>
<td>13</td>
</tr>
<tr>
<td>Average Move Score</td>
<td>23</td>
</tr>
<tr>
<td>Average Game Score</td>
<td>366</td>
</tr>
<tr>
<td>Most bingos in one game</td>
<td>2</td>
</tr>
<tr>
<td>Total number of bingos</td>
<td>41</td>
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</table>

A bingo is a move using all seven tiles.

Friend statistics

<table>
<thead>
<tr>
<th>Friend</th>
<th>Wins</th>
<th>Draws</th>
<th>Losses</th>
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<tbody>
<tr>
<td>astunner</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>authentic journey</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>barkeman</td>
<td>16</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Batman Olsson</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bellechai</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cyan13</td>
<td>11</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Drunk-on-life</td>
<td>6</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>elz14c</td>
<td>18</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

Statistics are calculated for games started February 16 2013 or later.
Wordfeud

Your Turn
- Playing with simon downie
  - Game started: 19 Oct 22:35
  - simon downie played FEZ for 25 points
- Playing with Alex
  - Game started: 19 Oct 07:03
  - Alex played EH for 28 points
- Playing with barkeman
  - Game started: 16 Oct 22:39
  - barkeman played AX for 14 points

Their Turn
- Playing with DelaGul
  - Game started: 19 Oct 21:35
  - You played OXY for 14 points
- Playing with vacvac
  - Game started: 16 Oct 22:35
  - You played UTE for 32 points

New Game

New Game With
- Facebook Friend
  - Choose among your Facebook friends
- Wordfeud Friend
  - Choose among your Wordfeud friends
- Contact
  - Choose a person from your contact list
- Random Opponent
  - Find an opponent automatically
- Find Player
  - Search by email address or username
DESIGN

How would you develop this application?
ASSIGNMENT GROUPS
TEAMWORK
TEAMWORK

- Assigning people to roles
- Swapping roles
- Peer learning: splitting up learning of material, and teaching remainder of group
FORM GROUPS

• Groups of 4 or 5.

• Ensure that you have at least one hour time slot that you can meet with a TA per week.

• When you have your group, sign up with a TA (provisional).

• You can leave when you have signed up.

• Do not leave room without joining a group.