Title: HTML5 Columns Game

Start Date: Tuesday, 4 March 2014

Assessment Day: Wednesday, 11 June 2014

Assessable units of competency

ICAPRG523A - Apply advanced programming skills in another language
ICAICT406A - Build a Graphical user interface
ICAGAM511A - Manage testing of games and interactive media
ICAPRG504A - Deploy an application to a production environment

General description

You are to implement and deploy a HTML5 'Columns'-like game onto a web server that can be played within a HTML5 compatible browser. The major components of the game will be constructed through the application and completion of lecture and tutorial exercises.

An example of the desired gameplay can be seen in this video: http://www.youtube.com/watch?v=ZPZtfV82nik

The game will support the following mechanics:

- Columns of 3 gems fall vertically from the top of the screen.
- Each falling column can have their gems' order vertically cycled.
- A falling column can be moved left and right but **not** rotated so that it is horizontal.
- When a column 'lands', matches of 3 gems or more are detected and the matching gems are removed. Any gems above removed gems must fall down to fill any gaps.
- Matches can occur vertically, horizontally or diagonally.
- Cascaded matches, which are subsequent matches occurring after gems have fallen down to fill gaps, must also be detected and handled.
- Points are awarded for matching gems. Longer sequences of matches (4,5,6 gems etc.) will be awarded more points per gem. A similar score boost will apply for cascaded matches.
- When a set number of gems (e.g. 10) have been matched, the player will progress to a higher level of playing difficulty (e.g. where the columns fall at a faster rate).

The game will also support the following features:

- A sequence of UI screens including: splash screen, main menu screen, game screen, end game screen, and high score screen.
- Animations for all gem matches and screen transitions.
- Sounds effects and background music.
- The ability to persistent at least 5 high scores.
- A high-score screen showing the top 5 scores.
- A mobile friendly UI (e.g. inclusion of on-screen control pad or other mechanism). You **cannot** just support keyboard controls.
- An appropriately themed HUD showing relevant game information on-screen.
- The usage of live data from a web API that affects the game mechanics or display (e.g. the current weather temperature can affect the background image/colour/effects applied within the game).

Your final game will need to demonstrate all the following technical requirements:

- Application of advanced programming concepts in HTML5/Javascript..
- The usage of a third party library (e.g. Cocos2D, Enchant.js, JQuery.js).
- Saving and loading game data (e.g. levels, high scores) to and from persistent memory.
- Multi-threaded access to external web API data for integration into your game using HTML5 web workers.
- Your own implementation of sorting high scores.
- Usage and implementation of advanced data structures in HTML5/Javascript.

The set of evidence you will need to submit to demonstrate the above requirements will be:

- The completed game deployed on a web server and runnable within a HTML5 compliant browser
- Your source code adhering to coding standards, thoroughly commented and version controlled
- A UI and Player Controller Design document that details your screen flows, screen UI elements, HUD, and player controller input designs
- A Testing Design and Report document that details how you designed your test coverage and the results of the tests. All major remaining bugs must be reported.
- An installation and uninstallation document that details how a third party can install and uninstall your game from their web server.

Knowledge and skills

Listed here are the knowledge and skills you'll be learning and on which you will be assessed:

- Detailed technical skills in another programming language.
- Design, implementation and testing of GUI development.
- Features of third party APIs and libraries.
- Deployment of web applications.
- Test planning, management and reporting skills.
- Communication skills to determine and define client testing and technical requirements.

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Evidence specifications

This is the specific evidence you must prepare for and present on assessment day to demonstrate you have competency in the above knowledge and skills. The evidence must conform to all the specific requirements listed below.

1. A 'column's-like HTML5 game deployed onto a web server and playable on a client's browser
2. Source code demonstrating advanced coding practices in HTML5/Javsascript
3. UI and Player Control design document
4. Test Documentation
5. Installation plan

Your roles and responsibilities as a candidate

- Understand and feel comfortable with the assessment process
- Know what evidence you must provide during your assessment
- Take an active part in the assessment process
- Be ready for the assessment at the nominated time

Assessment instructions for candidate

METHOD OF ASSESSMENT

Assessment will be conducted by you personally presenting evidence that demonstrates your competence in a short interview with your assessor. The evidence you must prepare and present is described above in this assessment criteria document. Assessments will be conducted on a specific day recorded above in this assessment criteria document.

ASSESSMENT CONDITIONS

You will have approximately 10 mins to present your evidence that demonstrates your competence. It is your responsibility to be prepared. If you have forgotten something or made a small mistake you may correct it, however the assessor may choose to assess other candidates who are better prepared and return to you if time permits. Upon completion of the assessment you will be issued with feedback and a record of the assessment, which you will need to acknowledge that you have accepted the result. If you are absent on the nominated assessment day (without prior agreement or a sufficient documented excuse) you will be assessed as not yet competent.

GRADING

The assessment you are undertaking will be graded as either *competent* or not *yet competent*.

REASSESSMENT PROCESS

If you are assessed as being not yet competent you will receive clear, written and oral feedback on what you will need to do to achieve competence. You will have one (1) week to prepare your evidence for a reassessment. You will be given only one reassessment opportunity. If you are unsuccessful after your reassessment you will be required to attend an intervention meeting with your Head of School to discuss your progress.

REASONABLE ADJUSTMENTS

We recognise the need to make reasonable adjustments within our assessment and learning environments to meet your individual needs. If you need to speak confidentially to someone about your individual needs please contact your teacher.

Assessment rubric

This table defines exactly what is required to be successfully deemed competent.

Evidence	Definition of Competent for HTML5 Columns Game
1. A 'column's-like HTML5 game deployed onto a web server and playable on a client's browser	The final game deployed and executed must demonstrate: • A runnable and complete 'columns'-like game executing in a HTML5 compliant browser • The ability to run and be played on a mobile device through a HTML5 compliant browser • No major game breaking bugs • Evidence of debugging within the browser
2. Source code demonstrating advanced coding practices in HTML5/Javsascript	Submitted project source code must demonstrate: • Implementation of advanced data structures • Implementation of sorting algorithms • Persistence of level and user data • Usage of threading using HTML5 web workers • Usage of third party libraries • Adherence to commenting, source control and coding conventions

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3. UI and Player Control Design Document	Submitted UI and Player Control Design documentation must demonstrate: • Screen flows • Control schemes (include considerations for both mobile and desktop versions) • On-screen HUD designs
4. Test Documentation	Submitted test documentation must demonstrate: • Test plan and how the designed tests trace back to game requirements • Test execution results • Test reports with summary tables and charts • A list of remaining major bugs
5. Installation Plan	Submitted installation and uninstallation documentation must demonstrate: • How to install your game and related game data on a web server • How to uninstall your game and related game data from a web server

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