

## School of Computer of Science

### ASSIGNMENT BRIEFING SHEET (2017/18 Academic Year) – ANONYMOUS MARKING

<b>Assignment Title</b>	Mobile App Development Using Xcode	<b>Submission Date</b>	20/04/2018, Friday
<b>Module Title</b>	Mobile Computing	<b>Module Code</b>	6COM1047
<b>Tutor</b>	Xianhui Cherry Che	<b>GROUP or INDIVIDUAL Assignment</b>	Individual

#### FOR INDIVIDUAL ASSIGNMENTS – STUDENT TO COMPLETE

By completing **BOX A** below, I certify that the submitted work is entirely mine and that any material derived or quoted from the published or unpublished work of other persons has been duly acknowledged. [ref. UPR AS12, section 7 and UPR AS14 (Appendix III)]. I also certify, that any work with human participants has been carried out under an approved ethics protocol in accordance with UPR RE01.

Please **ONLY** provide your ID (srn) number as this assignment will be anonymously marked

#### BOX A

**Student ID Number (SRN)**

**This sheet must be submitted with the assignment, and either BOX A filled in.  
LATE SUBMISSION WILL ATTRACT A STANDARD LATENESS PENALTY.**

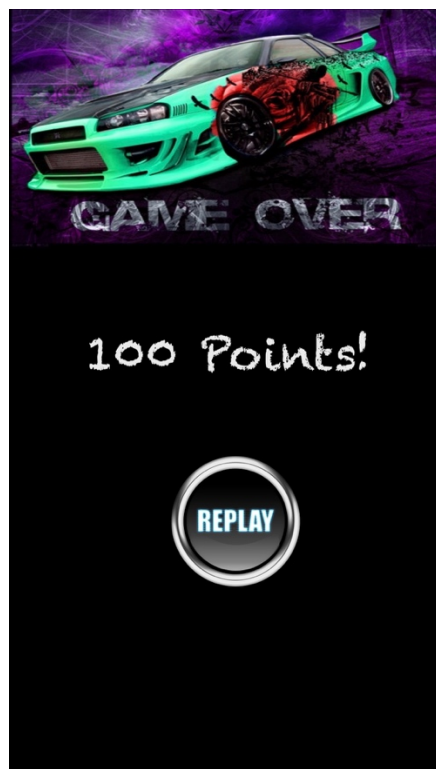
1. For undergraduate modules, a score of 40% or above represents a pass mark.
2. For postgraduate modules, a score of 50% or above represents a pass mark.
3. For work submitted up to 5 working days late marked is capped to a bare pass (40% for undergraduate and 50% for postgraduate).
4. For work submitted more than 5 working days a mark of zero will be awarded for the assignment.

## ASSIGNMENT BRIEFING SHEET (2016/17 Academic Year)

### ANONYMOUS MARKING

#### THE ASSIGNMENT TASK:

The task of this assignment is to develop an iOS mobile app using Xcode platform. The app will be a type of car racing game, as indicated below.



**Target Users:** Casual game players

#### Usability Requirement:

- The app should be easy enough for the target users to play on their own, and appealing enough to keep repeated play.
- A highly usable app should be able to run on any iPhone models of any screen size.

**Showcase Video:** You can view the showcase video of this app on [Studynet/Teaching Resources/Demo/Showcase CW.mov](#), which gives you an idea of the effect you can aim to achieve. In reality, you do not have to design the app as identical as the one shown in the demo video – if you have better ideas, you are welcome to give it a try.

**Resources:** The images used in the showcase video are available on [Studynet/Teaching Resources/images.zip](#). Please feel free to use them. You can use other image sources or themes if you like.

### Development Strategy:

There may be many approaches to implement this game. Here is one possible pathway for the essential development:

1. Create a roadmap background with motion effects.  
(Read Lab 5 for using CA to create animation with alternating images.)
2. Place a car on the road, and make the car image object drag-and-move.  
(Read Lab 4 for making drag-and-move images and how to move within boundary.)
3. Create a series of obstacle cars that will randomly appear from the top of the screen.  
(Read Lab 3 for creating a new image view programmatically.)  
(Read Lab 7 for generating delay.)
4. Make the obstacle cars fall to the bottom of the screen, preferably with various speed.  
(Read Lab 6 for using UIKit Dynamics to create falling motion with linear speed.)
5. Create collision between the main car and obstacle cars. For the time being, just leave the main car static during the testing process.  
(Read Lab 6 for how to add collision behaviours. All obstacle cars need to be added to the items of collision behavior. As for the main car, it is a bit tricky. Consider two options:
  - a. Like obstacle cars, the main car is also added to the items of collision behaviour;
  - b. Add the frame of the main car to the collision boundary of the obstacle cars.It is advised to use option (b) instead of (a), as it is more stable. Since the main car is associated with drag-and-move action, it will not react to the collision behaviour dynamics effectively.  
Read Lab 6 for how to add and delete collision boundaries. Keep the main car static for now to test the collision boundary.)
6. Make the collision boundary move automatically as the main car is being dragged.  
(Whilst the main car is being dragged, i.e. within touchesMoved function, it needs to delegate the main view to do the following actions:
  - a. Remove all existing collision boundaries for obstacle cars;
  - b. Add the current car frame to the collision boundary.Read Lab 4 for how to use delegate.)
7. Set a time-out for the game. **Please make sure each game is no longer than 20 seconds.**  
(Read Lab 7 for generating delay.)
8. At the end of time-out, show a Game-Over screen. Enable replay.  
(Read Lab 3 for how to make a view show/hidden.)
9. Keep score, which is gained for bypassing an obstacle and lost for colliding.  
(Read Lab 6 for a solution to create actions after collision/intersection. This code should be put in the same delegate as step 6.  
However, make sure the intersection is not caused by the road view, game-out view, or itself. Read Lab 3 for how to search all subviews so as to exclude these possibilities.)
10. Further improve and polish the app. Make it more real. Enhance user experience.  
(Use Lab 2 and 9 to practice Agile management and version control. Remember – always back up your work on GitHub before you leave the desk.)

Of course you may add some bonus features if you are up for it. But do not be too ambitious. You should rather have a simple app that works, than a rich app that does not work. Bear in mind that **an app that fails to run will be capped at 40% for marks.**

## MODULE LEARNING OUTCOMES ASSESSED BY THIS ASSIGNMENT:

### a. Knowledge and Understanding:

Successful students will typically have a knowledge and understanding of:

- [2] Principles of mobile operation and usability
- [3] Development and evaluation practices in mobile development

### b. Skills and Attributes:

Successful Students will typically be able to:

- [4] Write an app using a well-supported mobile platform and development environment
- [5] Handle issues of connectivity, user experience, accelerometry and location awareness in mobile programming
- [6] Critically evaluate the usability of a mobile app

## SUBMISSION REQUIREMENTS:

This assignment is to be submitted and marked anonymously. Students should **ONLY** use their student ID number to identify themselves on their work. Work submitted via Studynet for anonymous marking will automatically have an anonymity number allocated to it.

**Please use your student ID to name all your submissions required below.**

### Studynet:

- Zip your Xcode project into one file and submit it via Studynet.
- **Report:** You need to submit via Studynet a written report containing the self-evaluation of the app you designed, reflecting the usability and future improvements (max 800 words, excluding references). **Please note this is a usability report, not a user manual.**

### Demo Video:

1. Please use your UoH credentials to login to Office 365. And go to Videos → Channels → **6COM1047 – Mobile Computing (2017/218)**
2. Record a video that is up to 3 minutes showing how your app runs. Name your video after your **student ID**. **Please read [Studynet/Teaching Resources/Extra Tutorials/Video Recording](#) for guidance of recording videos.**
3. Upload the video to the channel. If you have no permission to do so, please contact us.

**GitHub:** Both version control and agile management are compulsory for this coursework. Your repository on GitHub should be private. The name of your repository should be your **student ID**. Please add [b.ip@herts.ac.uk](mailto:b.ip@herts.ac.uk) as a member or collaborator of your project. In terms of Kanban, you can either use the one within GitHub, or use Trello. If you use Trello, please invite [b.ip@herts.ac.uk](mailto:b.ip@herts.ac.uk) to your board.

*Please note we may call you for a viva if we have reasons to question your code.*

## FEEDBACK FROM THIS ASSIGNMENT

Each individual student will receive a written feedback about this assignment, as well as marks awarded based on the criteria set in the next section.

## MARKS AWARDED FOR:

Components	Marks
Functionalities and Reliability	60%
Development Practice	10%
Usability Practice	20%
Usability Analysis	10%
Total	100%

- **Functionalities and Reliability:** the programming exercise to achieve the required functionalities; reliability refers to the smooth and error-free running of the app
- **Development Practice:** agile management; repository with version control
- **Usability Practice:** friendly user interface for the targeted user group; a highly-usable app for any iPhone models
- **Usability Analysis:** self-reflection of the app design and implementation; discussion of future improvement

Please see next page for the detailed grading criteria.

## Grading Criteria

	Functionalities and Reliability (60%)	Development Practice (10%)	Usability Practice (20%)	Usability Analysis (10%)
1st	<p>A full list of required functions successfully implemented including roadmap motion, avatar dragging, random obstacles, collision effect, game-over facility, replay, score-keeping, and finish view.</p> <p>The app can run smoothly. No crashes or errors after repeated testing.</p>	<p>Well-planned task cards on the Kanban. Version control is efficiently and effectively used. Agile management helps with the project. Regular management behaviours are evident.</p>	<p>Appealing graphic interface. Easy-to-operate. Right sized images and view displays. Engaging interaction (e.g. extra animation effects and sounds). Apps runs fit to any iPhone models with any screen sizes.</p>	<p>In-depth evaluation. Statements supported by evidence. Sensible suggestions for future improvements. Background research effort indicated by solid reference list. Proper academic writing and report formatting.</p>
2:1	<p>Not all the functionalities have been implemented, but with a few improvements the app would be a ready-to-sell product of this kind.</p> <p>The app can run smoothly for the first or second time, but there may be some errors or crashes after repeated testing.</p>	<p>Well managed project on regular basis overall. May be lack of a few activities here or there.</p>	<p>User-friendly interface. Might be lack of animation but still delivers a delightful graphic effect. Relatively easy to operate.</p> <p>May work well on certain screens but not others.</p>	<p>Commendable quality of work containing all relevant analysis and discussions. May be lack of critical analysis. A minor effort of improvements still required.</p>
2:2	<p>Partial functionalities have been implemented.</p> <p>The app can run most of the time. There may be occasional crashes.</p>	<p>Genuine attempt on the agile management and version control but with relatively large time gap.</p>	<p>Some parts of the app may be not very straightforward to use. Graphical effect is relatively dull.</p> <p>Not compatible with all iPhone models.</p>	<p>Satisfactory level of understanding. Proper concepts are demonstrated with evidence.</p>
3 <sup>rd</sup>	<p>Genuine attempt on the app, but many modules are incomplete.</p> <p>The app is capable of running, but may be stuck in a few states during operations.</p>	<p>Only a couple of backup and project management attempts during the 8 weeks of development process. Mismatched or doubtful submissions made.</p>	<p>The app is hard to manipulate. The graphic interface is boring for young-aged user group.</p> <p>The screen layout is not even working well on one particular model.</p>	<p>Brief discussion on the subjects. Familiarity with the usability concept, but unable to form an evaluation.</p>
Fail	<p>The app does not run at all.</p>	<p>No exercise towards agile management and version control. Fabrication of the process.</p>	<p>A non-working app submitted.</p>	<p>Very brief text on the subject. Academic dishonesty.</p>

## DEADLINES AND ASSIGNMENT WEIGHTINGS

- 1 This assignment is worth  of the **overall assessment** for this module.
- 2 You are expected to spend about  Hours to complete this assignment to a satisfactory standard
- 3 Date assignment set  Date completed assignment to be handed in
- 4 Target date for return of marked assignment

## INTERNAL MODERATION

<p>This assignment has been internally moderated.</p> <p>I confirm:</p> <ul style="list-style-type: none"><li>• That the assignment set, meets the requirements of the module and that the brief provides appropriate content for students to successfully complete the assignment.</li><li>• That the assessment is at an appropriate level and matches QAA level descriptors and is an appropriate form of assessment within the total range of assessments for this module.</li><li>• That the marking scheme is attached and that students can determine how marks are allocated.</li><li>• That this assessment can be completed <b>and</b> marked within University timeframes, and provides detailed feedback (more than just a grade) that supports learning.</li></ul>	<p><b>Moderator name, signature and date</b></p> <p><i>Wei J.</i></p> <p><i>WEI J.</i></p> <p><i>23/01/2018</i></p>
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