Coursework Assignment Brief

Postgraduate

***Academic Year 2019-20***

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| **Module Title:** | Advanced Mobile Computing | |
| **Module Code:** | CMP7163 | |
| **Assessment Title:** | Design and Implementation of a Cross-platform Mobile Application | |
| **Assessment Identifier:** |  | Weighting:  100% |
| **School:** | Computing and Digital Technology | |
| **Module Co-ordinator:** | Harjinder Singh | |
| **Hand in deadline date:** | Assessment 1.1: Mobile Application Design Presentation:  **12pm Mid-day on 2nd March 2020**  Assessment 1.2: Prototype Cross-Platform Mobile Application Demonstration:  **12pm Mid-day on 4th May 2020**  *Individual Presentations / Demonstrations will be scheduled in week(s) immediately following submission, as required.*  *The schedule will be announced in advance on Moodle.* | |
| **Re-assessment hand in deadline date:** | 12pm Mid-day on 27th July 2020 | |
| **Return of Feedback date and format** | Marks and formal feedback will normally be provided within 20 working days of the submission deadline.  Also, informal feed-forward (for presentations) and feedback (for both assessment elements) will be provided individually and in-person at the time of scheduled assessment slot. | |
| **Support available for students required to submit a re-assessment:** | Timetabled support sessions will be arranged for the period immediately preceding the hand-in date | |
| **NOTE:** | At the first assessment attempt, the full range of marks is available. At the re-assessment attempt the mark is capped and the maximum mark that can be achieved is 50%. | |
| **Assessment Summary** | The Assessment will take the form of short (in-person individual) presentation and demonstration to include:   1. A brief presentation on your understanding and appreciation of the planning, design and development concepts behind the proposed mobile application idea (Presentation slides) 2. A brief demonstration and discussion of the implemented mobile application prototype (Cross-platform Application) | |

**IMPORTANT STATEMENTS**

**Standard Postgraduate Regulations**

Your studies will be governed by the BCU Academic Regulations on Assessment, Progression and Awards. Copies of regulations can be found at https://icity.bcu.ac.uk/Academic-Services/Information-for-Students/Assessment/Assessment-Regulations

For courses accredited by professional bodies such as the IET (Institution of Engineering and Technology) there are some exemptions from the standard regulations and these are detailed in your Programme Handbook

**Cheating and Plagiarism**

Both cheating and plagiarism are totally unacceptable and the University maintains a strict policy against them. It is YOUR responsibility to be aware of this policy and to act accordingly. Please refer to the Academic Registry Guidance at https://icity.bcu.ac.uk/Academic-Registry/Information-for-Students/Assessment/Avoiding-Allegations-of-Cheating

The basic principles are:

\* Don’t pass off anyone else’s work as your own, including work from “essay banks”. This is plagiarism and is viewed extremely seriously by the University.

\* Don’t submit a piece of work in whole or in part that has already been submitted for assessment elsewhere. This is called duplication and, like plagiarism, is viewed extremely seriously by the University.

\* Always acknowledge all of the sources that you have used in your coursework assignment or project.

\* If you are using the exact words of another person, always put them in quotation marks.

\* Check that you know whether the coursework is to be produced individually or whether you can work with others.

\* If you are doing group work, be sure about what you are supposed to do on your own.

\* Never make up or falsify data to prove your point.

\* Never allow others to copy your work.

\* Never lend disks, memory sticks or copies of your coursework to any other student in the University; this may lead you being accused of collusion.

By submitting coursework, either physically or electronically, you are confirming that it is your own work (or, in the case of a group submission, that it is the result of joint work undertaken by members of the group that you represent) and that you have read and understand the University’s guidance on plagiarism and cheating.

You should be aware that coursework may be submitted to an electronic detection system in order to help ascertain if any plagiarised material is present. You may check your own work prior to submission using Turnitin at the Formative Moodle Site. If you have queries about what constitutes plagiarism, please speak to your module tutor or the Centre for Academic Success.

**Electronic Submission of Work**

It is your responsibility to ensure that work submitted in electronic format can be opened on a faculty computer and to check that any electronic submissions have been successfully uploaded. If it cannot be opened it will not be marked. Any required file formats will be specified in the assignment brief and failure to comply with these submission requirements will result in work not being marked. You must retain a copy of all electronic work you have submitted and re-submit if requested.

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| **Learning Outcomes to be Assessed:**   1. Analyse and break down a problem to yield the salient features that need to be developed. 2. Design an appropriate solution to the problem and features required. 3. Develop and apply current web standard compliant scripting to facilitate the creation of platform independent mobile applications. 4. Evaluate the effectiveness of the developed solution from a technical and user perspective. |

**Assessment Details:**

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| **Title:** Design and Implementation of a Platform Independent Mobile Application  **Type:** Coursework / In Person  **Style:** Each student will need to come up with an original mobile idea to meet the criteria specified. The assessment will be carried out as a 2 stage process:  **Stage 1: Mobile App Idea PRESENTATION [30%]:** you will submit and present a (e.g. PowerPoint) presentation, that illustrates the detailed design for the proposed mobile application.  **Stage 2: Prototype Cross-Platform Application DEMONSTRATION [70%]:** you will submit and demonstrate your completed mobile application based on the given criteria (see base criteria in assessment description). |
| **Rationale:**  In this assessment you will propose, design and implement a prototypical cross-platform mobile application. This is intended to introduce you to the environment of commercial mobile application development, where you will often be involved in the full life-cycle (or in any of the stages) of the development of applications. The aim of the exercise is to learn the core development skills involved in the development of commercial Mobile apps – starting with the inception and design of an idea, right through to the implement of a prototypical app using specific platform independent and specific features and technology frameworks.  **Description:**  You will design, implement and demonstrate a prototypical mobile application deployable on multiple mobile platforms (i.e. Android / iOS), to meet some base functional / design criteria (see below). This prototype should be based on a submitted **presentation** outlining an *original commercial app idea*.  You will use the **React Native** cross-platform application development framework (as covered in the taught elements of this module) to **implement** your mobile app.  The **base criteria** *(i.e. the minimum feature-set required)* for the mobile app are:   * has a robust, intuitive and easy to use **User Interface** (e.g. multiple screens) * is deployable to both Android and iOS devices (**platform independent**) * is able to ‘consume’ a **Restful Web service** for managing **off-device data** * is able to **persist** (e.g. cache) and manage **data on the device** * uses ***at least one additional* framework feature\*\*,** beyond those highlighted above   *(\*\* examples of additional features could be: location services, social media, mobile specific features such as motion detection or telephony, etc, etc)*  Therefore, as guidance, your discussion and demonstration of your application idea must include:   * A brief submitted (PowerPoint) **presentation** that will form the basis of a brief discussion about a cross-platform mobile app idea. **[30%]** * A brief **demonstration** and discussion of a submitted **prototype cross-platform mobile application**, particularly illustrating an understanding and systematic approach to designing and implementing the required features (see base criteria above). This covers both technical and user experience elements. **[70%]:** |
| **Additional information:**  For additional guidance and support you are referred to the assessment section at the top of the module’s Moodle site.  For the **presentation** each student will be given 5 minutes to individually present their work followed by up to 5 minutes to answer questions.  For the **demonstration** each student will be given up to 10 minutes to individually demonstrate their prototype app followed by up to 5 minutes for questions. |
| **Workload:**  Typically, this assessment will require 50 hours of your time – to include app idea research and implementation of prototype application. |
| **Transferable skills:**  This assignment develops numerous transferable skills that are highly prized by employers. These include:   * Proposing, defending and developing innovative and original project ideas. * Oral communication and presentation skills * Troubleshooting and problem solving * Reflection and improvement * Time management and planning |

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| **Marking Criteria (for Guidance Only):**  **Table of Assessment Criteria and Associated Grading Criteria**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | **Assessment**  **Criteria**  *(mapped to learning outcomes)* | **1.**  **App Idea Presentation:**  **Quality of application design and investigation of mobile features and frameworks**  **(LO1)** | **2.**  **App Demonstration:**  **Core UI Implementation**  **with data persistence**  **(LO2 & LO3)** | **3.**  **App Demonstration:**  **Use of Web Services**  **(LO2 & LO3)** | **4.**  **App Demonstration:**  **Use of additional [platform and native] Framework(s)**  **(LO2 & LO3)** | **5.**  **App Demonstration: Understanding of Architecture and core Programming concepts**  **(LO4)** | |  | **Weight:** | **30%** | **30%** | **10%** | **10%** | **20%** | |  | **0 – 29%** | Minimal or significantly incomplete effort at describing the application idea. | Minimal or significantly incomplete attempt at implementing a basic React Native App. | Minimal or significantly incomplete attempt at consuming simple web service based data. | Minimal or significantly incomplete attempt at implementing *a single* extended feature in the React Native app using an additional cross platform OR platform specific API | Minimal or significantly incomplete demonstration – showing no understanding of the core concepts covered in the module | |  | **30 – 39%** | A poorly formulated idea that shows little awareness of the targeted platforms and frameworks | A very poor (*unsuccessful – but code present*) attempt at implementing a basic React Native App. | A very poor (*unsuccessful – but code present*) attempt at consuming simple web service based data. | A very poor (*unsuccessful – but code present*) attempt at implementing *a single* extended feature in the React Native app using an additional cross platform OR platform specific API | A very poor overall demonstration – showing little or no understanding of the core concepts covered in the module | |  | **40 – 49%** | A basic project idea that shows limited awareness of the targeted platforms and frameworks | A very basic (*partially successful*) attempt at implementing a simplistic (basic UI only) React Native App. | A very basic (*partially successful*) attempt at consuming simple web service data *(e.g. able to show reading of JSON data but not able to display)* | A very basic (*partially successful*) attempt at implementing  *a single* extended feature in the React Native app using an additional cross platform OR platform specific API | A weak demonstration – showing a weak understanding of the core concepts covered in the module | |  | **50 – 59%** | A viable, but uninspired project idea, backed by some basic research into target platforms and frameworks | A basic *(successful*) attempt at implementing a React Native App,that demonstrates an *intuitive and robust UI* *– e.g. with multiple navigable screens* | A basic *(successful)* attempt at consuming simple web service data.  *(e.g. able to read – and partly display simple JSON based data from service)* | A basic *(successful)* attempt at implementing  *a single* extended feature in the React Native app using an additional cross platform OR platform specific API | A basic or partial demonstration – showing a basic understanding of the core concepts covered in the module | |  | **60 – 69%** | A good project idea, backed by some basic research into target platform features and an awareness of essential frameworks. | A good *(successful)* attempt at implementing a React Native App, that demonstrates a highly robust and intuitive UI design, *including a very basic approach data persistence (e.g. settings / preferences, etc.)* | A good *(successful)* attempt at consuming simple web service data. *(e.g. able to fully read and clearly display – in a well formatted form - all data received from a single call to web service)* | A good *(successful)* attempt at implementing  *Multiple* extended features in the React Native app using an additional cross platform AND/OR platform specific API | A good demonstration – showing a good understanding of the core concepts covered in the module. | |  | **70 – 79%** | A very good project idea, backed by detailed research into target platform features showing a detailed knowledge of essential frameworks. | A very good *(successful)* attempt at implementing a React Native App, that demonstrates a highly robust and intuitive UI design with a *more advanced approach to data persistence (e.g. SQLite database)* | A very good *(successful)* attempt at consuming and updating web service data. *(E.g. able to fully read and clearly display all data received from calls to web service, AND able to Add OR Modify backend data through service calls)* | A very good *(successful)* attempt at implementing  *Multiple* extended features in the React Native app using *at least one* additional cross platform AND *at least one* platform specific API | A very good and successful demonstration – showing a very good understanding of the core concepts covered in the module. | |  | **80 – 89%** | A highly ***unique*** project idea, backed by detailed research into target platform features and ***a detailed knowledge of essential frameworks supported by the target platform.*** | A very good *(fully successful)* attempt at implementing a React Native App, that demonstrates a highly robust and intuitive UI design with full data persistence (as per previous criterion)*, and uses a basic state management strategy (e.g. Redox).* | A very good *(fully successful)* attempt at consuming and updating web service data. *(E.g. able to fully read and clearly display all data received from calls to web service, AND able to Add AND Modify backend data through service calls)* | A very good *(fully successful)* attempt at implementing  *Multiple* extended features in the React Native app using *at least one* additional cross platform AND *at least one* platform specific API | A very good and fully successful demonstration – showing a full understanding of the core concepts covered in the module. Able to fully and confidently explain code and architectural concepts deployed in the application code. | | **90 – 100%** | | ***An excellent and novel project idea*** backed by an in-depth research of the target platform features and ***an in-depth knowledge of essential frameworks and patterns to the extent that the student should be able to cite (code based) examples of chosen frameworks on request during discussion.*** | An *excellent and professional* implementation of a React Native App, that demonstrates a highly robust and intuitive UI design with full data persistence*, using an advanced state management strategy and a full range of React-Native features (such as style sheets and other platform independent features).*  *The design of the application should show an in-depth awareness of advanced JavaScript programming paradigms and architectures.* | An *excellent and professional* implementation of a React Native App that smoothly consumes and updates complex web service data. *(e.g. able to fully read and clearly display and edit complex backend data – either using coherent multiple services (‘mash up’)* | A very good *(fully successful)* attempt at implementing  *Multiple* extended features in the React Native app using *multiple* additional cross platform ANDplatform specific API*.*  *The design of the application should show an in-depth awareness of advanced programming for the React-Native platform.* | An excellent demonstration – showing a detailed understanding of the core concepts covered in the module. *Also able to suggest design improvements to the presented implementation* | |

**Submission Details:**

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| **Format:**  You will submit your work to the relevant link in Moodle by the designated deadline (see frontpage of this assessment brief) in an appropriate format, to include:   * A brief Presentation outlining your project idea *as a Presentation file (e.g. PowerPoint)* * The full React Native application project folder and files for the prototype App developed - submitted *as a compressed (zipped) folder containing all Project files and fully commented source code* |
| **Regulations:**  If you submit an assessment late at the first attempt then you will be subject to one of the following penalties:     * If the submission is made **between 1 and** **24 hours** after the published deadline the original mark awarded will be reduced by **5%**. For example, a mark of 60% will be reduced by 3% so that the mark that the student will receive is 57%. ; * If the submission is made between **24** **hours** and **one week (5 working days)** after the published deadline the original mark awarded will be reduced by 10%. For example, a mark of 60% will be reduced by 6% so that the mark the student will receive is 54%. * **If the submission is made after 5 days following the deadline, your work will be deemed as a fail and returned to you unmarked.**   The reduction in the mark will not be applied in the following two cases:   * + The mark is below the pass mark for the assessment. In this case the mark achieved by the student will stand   + Where a deduction will reduce the mark from a pass to a fail. In this case the mark awarded will be the threshold (i.e. 50%)   Please note:   * **If you submit a re-assessment late then it will be deemed as a fail and returned to you unmarked.** |

**Feedback:**

Detailed verbal feedback (and feed-forward in the case of the mobile idea presentation) on your work will be provided verbally at the time of the presentation / demonstration.

Formal written feedback / feed-forward will be given on Moodle, along with marks awarded, normally within 20 working days following the presentation / demonstration.

**Where to get help:**

Students can get additional support from the library for searching for information and finding academic sources. See their city page for more information: <http://libanswers.bcu.ac.uk/>

The Centre for Academic Success offers 1:1 advice and feedback on academic writing, referencing, study skills and maths/statistics/computing. See their iCity page for more information: <https://icity.bcu.ac.uk/celt/centre-for-academic-success>

See also the My Assignment Planner tool: <http://library.bcu.ac.uk/MAP2/freecalc-mail/>

**Fit to Submit:**

Are you ready to submit your assignment – review this assignment brief and consider whether you have met the criteria. Use the checklists provided below to ensure that you have done everything needed

Presentation Checklist:

- Title slide, giving proposed application’s and authors name, etc.

- Overview of your application idea justifying why it’s suitable for the mobile platform

- Description of application Requirements (e.g. Use Cases / Flowchart)

- Detailed description of UI / Interaction design (e.g. screen shots, UI flow, etc.)

- Description of application internal design (e.g. class diagram)

- Description of the proposed additional frameworks to be used

- Discussion of perceived challenges and plan for implementation

Demonstration Checklist:

- Fully commented mobile application source code

- Clear demonstration of implementation of prototype to include requirements, design and feature set as proposed in Presentation.

- Ability to discuss design decisions and changes (if any) to original proposed design

- Ability to discuss internal design and architecture of application (including an understanding of the design patterns employed)

- Ability to discuss approaches to the testing of the mobile app

- Ability to propose alternative ideas for developing the application design further