PRE-PRODUCTION TASKS & PITCHES

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"The first 90 percent of the code accounts for the first 90 percent of the development time.

"The remaining 10 percent of the code accounts for the other 90 percent of the development time."

— Tom Cargill

"Hofstadter's Law:

"It always takes longer than you expect, even when you take into account Hofstadter's Law."

— Douglas Hofstadter

Introduction

In this assignment, you will prepare and pitch a pre-production prototype of a game-related product. You can: (i) join a single BA team as a `technical specialist' to work on a specific game component; (ii) join multiple BA teams as a `consultant' to work with one particular emerging technology; (iii) join a BSc team to develop a game that will serve as a tech demo for cutting-edge game components; or (iv) work in any configuration (including individual) to develop a game-making tool or game middleware that another BA/BSc team could make use of. Use any programming language or technology.

Gaming is a diverse ecology. Experiencing different roles and cross-disciplinary challenges is important. Computing professionals frequently encounter them.

This assignment is formed of several parts:

(A) **Write**, as an **individual**, a 2-page handout that will:
   i. **outline** a product concept **and** target market;
   ii. **state** your intended **individual** contribution;
   iii. and **justify** a business case for the product overall.

(B) **Present**, as an **individual**, a 3-minute `elevator pitch', which will:
   i. **clarify** the product concept contained in your handout;
   ii. and **illustrate why** someone should invest in your product.

(C) **Prepare**, as a **group**, a plan, which will:
   i. **identify** the skills and time available to complete pre-production;
   ii. **iterate** upon **and improve** the design of the product;
   iii. **describe** the key user stories that comprise the requirements;
   iv. and **highlight** the stories that will comprise a minimal viable product.

(D) **Implement**, as a **group**, an initial pre-production prototype of the product which will:
   i. **illustrate** the product's core features and unique selling points.

(E) **Implement**, as a **group**, a final pre-production prototype of the product which will:
   i. **revise** any issues raised by your tutor and/or your peers.

(F) **Write**, as a **group**, a presentation slide-deck and 2-page handout which:
   i. **outlines** the core features and unique selling points;
   ii. and **justifies** the business case for the product overall.

(G) **Present**, as a **group**, a 15-minute `investment pitch` that will:
   i. **clarify** the product and its design, as proposed in your presentation slide-deck and handout;
   ii. and **demonstrate** the final pre-production prototype.
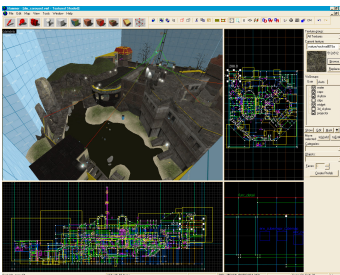
Don't make *Hammer*, but something like it would be an interesting game-making tool the BA students could make use of.

Assignment Setup

This assignment is a **product development task**. Fork the GitHub repositories at the following URL:

```
https://github.com/Falmouth-Games-Academy/comp230-pre-production
```

Use the existing directory structure and, as required, extend this structure with sub-directories. Ensure that you maintain the `readme.md` file.

Modify the `.gitignore` to the defaults for your language of choice. Please, also ensure that you add editor-specific files and folders to `.gitignore`.

> If you are not working with other BSc students, you are a group of one. As such, all references to group, collaborative, and/or teamwork activities refer to yourself as an individual. Involving BA students in such activites is optional.

Part A

Part A consists of a **single formative submission**. This work is **individual** and will be assessed on a **threshold** basis. Answer the following questions to pass:

- What is the product?

- Is there a market? Who is the target audience?

- What are the unique selling points?

- Is the scope appropriate for the product development time-frame?

To complete Part A, prepare the handout using any word processing tool. There is no submission.

Show the handout to your **tutor** for immediate **informal feedback**.

Part B

Part B consists of a **single formative submission**. This work is **individual** and will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

(a) Presentation is timely;

(b) The product concept can be understood;

(c) Proposed product concept will likely lead to a feasible product design.

To complete Part B, practice the delivery of the presentation. Ensure that you are comfortable with the presentation medium and discuss any concerns with your tutor. Then, attend the scheduled elevator pitch session. Also, please ensure that you bring a sufficient number of copies of your handout to the session.

A formal presentation slide-deck (i.e. PowerPoint) is **not permitted**. However, additional visual, tactile, auditory, and/or olfactory aids are acceptable.

You will receive immediate **informal feedback** from **tutors** and **peers**.

Part C

Part C consists of a **single formative submission**. This work is **collaborative** and will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

(a) Only well-formed user stories are included;

(b) The plan is comprehensive;

(c) The plan is feasible.

To complete Part C, setup and populate the team Trello board. Ensure that all members of the team are added to the board. Show it to your tutor in the scheduled personal catch-up tutorial.

You will receive immediate **informal feedback** from your **tutor**.

Part D

Part D is a **single formative submission**. This work is **collaborative** and will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

(a) Submission is timely;

(b) Enough work is available to conduct a meaningful review;

(c) A broadly appropriate review of another team's work is submitted.

To complete Part D, prepare a draft version of the pre-production prototype. Ensure that the source code and related assets are pushed to GitHub and a pull request is made prior to the scheduled sprint review session. Then, attend the scheduled sprint review session.

You will receive immediate **informal feedback** from your **peers**.

Part E

Part E is a **single summative submission**. This work is **collaborative** and will be assessed on a **criterion-referenced** basis. Please refer to the marking rubric at the end of the brief for details on the criteria.

To complete Part E, revise the pre-production prototype based on the feedback you have received and finish any incomplete features. Please also ensure that you include appropriate screen-shots of the Trello board in a separate folder. Then, upload the source code to the LearningSpace. Please note, the LearningSpace will only accept a single `.zip` file. The recommended way of generating the `.zip` file is using the *Download Zip* button on the GitHub website.

You will receive **formal feedback** three weeks after the final deadline.

Part F

Part F is a **single summative submission**. This work is **collaborative** and will be assessed on a **threshold** basis. Ensure the presentation addresses the following:

- The title and high concept of the product
- The target audience and market

- The concept's unique selling points and how they distinguish it from competitors
- The design's technical and production feasibility
- The project's commercial feasibility

To complete Part F, prepare the handout and presentation slide-deck using any word processing and/or presentation tool. Then, upload the relevant files to the LearningSpace. Please note, the LearningSpace will only accept a single `.zip` file.

You will receive **informal feedback** from your tutor three days prior to Part G.

Part G

Part G is a **single summative submission**. This work is **collaborative** and will be assessed on a **criterion-referenced** basis. Please refer to the marking rubric at the end of the brief for details on the criteria.

To complete Part G, practice the delivery of the presentation. Ensure that you are comfortable with the presentation medium and discuss any concerns with your tutor. Then, attend the scheduled pitch and pre-production demo session. Please ensure that you bring a sufficient number of copies of your handout to the session. Please, also ensure that you setup a laptop with the presentation slide-deck and the pre-production demo ahead of time.

You will receive **formal feedback** three weeks after the final deadline.

Additional Guidance

Avoid poor planning and time management. By now this will be a familiar phrase, but it is no less true. In particular, avoid underestimating the effort required to implement even simple software; always consider scope. From the pitch stage, you should consider very carefully what is feasible.

For the most part, your work will be marked as a group effort. However we want to avoid the situation where students try to "coast" through the assignment on their fellow group members' work, and equally the situation where one member of the group takes the lion's share of the work and prevents the others from contributing effectively. Marks will be weighted by a multiplier for **individual contribution**, which aims to penalise both of these behaviours. We assess this by several means, including but not limited to: sprint reviews; individual vivas; feedback from your peers; attribution in the source code; and GitHub commit logs. Any student who has contributed their *fair share* of effort to the project will receive a fair % for their effort, so any student who is putting in the appropriate level of effort has no need to worry. Note that effort is not the same as productivity.

The first step in planning your implementation should be to break your concept down into **user stories**. Your user stories should be **distinguishable** (i.e. there should be little overlap between them) and **easily measured** (i.e. it should be easy to tell when each user story has been implemented). They should also be **comprehensive**, i.e. the user stories should completely capture the desired functionality of the game, with no gaps. Imagine giving your user stories to a developer who has never seen a product of this type before. Would they be able to implement the software correctly, or would they miss key features?

Your code will be assessed on **functional coherence**: how well the finished product corresponds to the user stories, and whether it has any obvious bugs. Correspondence to user stories runs both ways: implementing features that were not present in the design ("feature creep") is just as bad as neglecting to implement features.

Your code will also be assessed on **sophistication**. To succeed on a project of this size and complexity, you will need to make use of appropriate algorithms, data structures, libraries, and object oriented programming concepts. Appropriateness to the task at hand is key: you will **not** receive credit for complexity where something simpler would have sufficed.

Maintainability is important in all programming projects, but doubly so when working in a team. Use **comments** liberally to improve code comprehension, and carefully choose the **names** for your files, classes, functions and variables. Use a well-established commenting convention for **high-level documentation**. The open-source tool Doxygen supports several such conventions. Also ensure that all code corresponds to a sensible and consistent **formatting style**: indentation, whitespace, placement of curly braces, etc. Hard-coded **literals** (numbers and strings) within the source should be avoided, with values instead defined as constants together in a single place. Consider allowing some literal values, where appropriate, to be "tinkered" without changing the source code, e.g. by defining them in an external file read at startup.

As with all assignments on this course, you are expected to display a level of **innovation and creative flair** befitting Falmouth University's reputation as a world-leading arts institution. We are looking for creativity; but, you will **not** be judged on the quality of your art assets. One approach to promoting creativity is **divergent thinking**: generating ideas by exploring many possible solutions. Often the most interesting ideas are **subversive**: they deliberately go against convention or obvious solutions.

FAQ

- **What is the deadline for this assignment?**
  Falmouth University policy states that deadlines must only be specified on LearningSpace. Please examine the assignment area where you located this document.

- **What should I do to seek help?**
  You can email your tutor for informal clarifications. For informal feedback, make a pull request on GitHub.

- **Is this a mistake?**
  If you have discovered an issue with the brief itself, the source files are available at:
  `https://github.com/Falmouth-Games-Academy/bsc-assignment-briefs`.
  Please make a pull request and comment accordingly.

Additional Resources

- `https://literateprogramming.com`

- `https://doxygen.org`

- `https://blog.codinghorror.com/`

- `http://martinfowler.com/articles/continuousIntegration.html`

- `https://www.thoughtworks.com/continuous-integration`

- `https://c9.io`

- `http://www.gamasutra.com/blogs/RogerPaffrath/20131115/204871/What_NOT_to_do_when_starting_as_an_indie_game_developer.php`

Marking Rubric (Pre-Production Prototype)

Criteria marked with a † are weighted by individual contribution to a shared deliverable. All other criteria are individual.

Criterion	Weight	Refer for Resubmission	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency	Professional Proficiency
Sprint Reviews	40%	The student fails to participate in at least one sprint review.	The student participates in all sprint reviews. All sprint reviews result in a playable build.				
Appropriateness of User Stories and Sprint Plans	5% †	Few user stories are distinguishable and easily measured. Sprint plans provide little support for the project.	Some user stories are distinguishable and easily measured. Sprint plans provide some support for the project.	Most user stories are distinguishable and easily measured. User stories correspond to the product design. Sprint plans provide much support for the project.	Nearly all user stories are distinguishable and easily measured. User stories clearly correspond to the product design. Sprint plans provide considerable support for the project.	All user stories are distinguishable and easily measured. User stories clearly and comprehensively correspond to the product design. Sprint plans provide significant support for the project.	All user stories are distinguishable and easily measured. User stories clearly and comprehensively correspond to the product design. Sprint plans provide extensive support for the project.
Functional Coherence	5% †	Few user stories have been implemented and/or the code fails to compile or run. Many obvious and serious bugs are detected.	Some user stories have been implemented. Some obvious bugs are detected.	Many user stories have been implemented. There is some evidence of feature creep. Few obvious bugs are detected.	Almost all user stories have been implemented. There is little evidence of feature creep. Some minor bugs are detected.	All user stories have been implemented. There is almost no evidence of feature creep. Some bugs, purely cosmetic and/or superficial in nature, are detected.	All user stories have been implemented. There is no evidence of feature creep. Few to no bugs are detected.
Sophistication	10% †	Little insight into the appropriate use of programming constructs is evident from the source code. The program structure is poor or non-existant.	Some insight into the appropriate use of programming constructs is evident from the source code. The program structure is adequate.	Much insight into the appropriate use of programming constructs is evident from the source code. The program structure is appropriate.	Considerable insight into the appropriate use of programming constructs is evident from the source code. The program structure is effective. There is high cohesion and low coupling.	Significant insight into the appropriate use of programming constructs is evident from the source code. The program structure is very effective. There is high cohesion and low coupling.	Extensive insight into the appropriate use of programming constructs is evident from the source code. The program structure is extremely effective. There is very high cohesion and very low coupling.
Maintainability	20% †	The code is only sporadically commented, if at all, or comments are unclear. Few identifier names are clear or inappropriate. Code formatting hinders readability.	The code is well commented. Some identifier names are descriptive and appropriate. An attempt has been made to adhere to a consistent formatting style. There is little obvious duplication of code or of literal values.	The code is reasonably well commented. Most identifier names are descriptive and appropriate. Most code adheres to the an appropriate formatting style. There is almost no obvious duplication of code or of literal values.	The code is reasonably well commented, with appropriate Doxygen-compatiable documentation. Almost all identifier names are descriptive and appropriate. Almost all code adheres to the an appropriate formatting style. There is no obvious duplication of code or of literal values. Some literal values can be easily "tinkered".	The code is very well commented, with comprehensive appropriate Doxygen-compatiable documentation. All identifier names are descriptive and appropriate. All code adheres to the an appropriate formatting style. There is no obvious duplication of code or of literal values. Most literal values are, where appropriate, easily "tinkered" outside of the source.	The code is commented extremely well, with comprehensive appropriate Doxygen-compatiable documentation. All identifier names are descriptive and appropriate. All code adheres to the an appropriate formatting style. There is no duplication of code or of literal values. Nearly all literal values are, where appropriate, easily "tinkered" outside of the source.

Criterion	Weight	Refer for Resubmission	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency	Professional Proficiency
Portability and Navigability	5% †	Product will not execute at all on another machine, for reasons related to code portability, even if they are trivially resolvable. The directory structure inside the submitted zip file is unclear. Provided template has not been followed well, if at all.	Several portability issues are present. The directory structure inside the submitted zip file is somewhat confusing. The provided template has mostly been followed.	Some portability issues are present. The directory structure inside the submitted zip file is adequate. The provided template has been followed.	Few portability issues are present. The directory structure inside the submitted zip file is mostly sensible. The provided template has been followed.	Almost no portability issues are present. The directory structure inside the submitted zip file is sensible. The provided template has been followed.	No portability issues are present. Appropriate cross-platform compatiability on Linux, Windows, and MacOS. The directory structure inside the submitted zip file is sensible. The provided template has been followed.
Professionalism & Cohesion	5% †	The group has demonstrated little professionalism. Agile working practices have provided little support for the project.	The group has demonstrated some professionalism, functioning adequately in a team and/or customer engagment context. Agile working practices have provided some support for the project.	The group has demonstrated much professionalism, functioning somewhat effectively in a team and/or customer engagment context. Agile working practices have provided much support for the project.	The group has demonstrated considerable professionalism, functioning effectively in a team and/or customer engagment context. Agile working practices have provided considerable support for the project. There is evidence of some use of appropriate tools to support a continuous integration approach.	The group has demonstrated significant professionalism, functioning highly effectively in a team and/or customer engagment context. Agile working practices have provided significant support for the project. Appropriate tools have been effectively used to effectively support a continuous integration approach.	The group has demonstrated extensive professionalism, functioning highly effectively in a team and/or customer engagment context. Agile working practices have provided substantial support for the project. Appropriate tools have been used very effectively to support a continuous integration approach.
Use of Version Control	10%	Material has been checked into GitHub less frequently than once per sprint. All code has been checked into the Master branch.	Code has been checked into GitHub at least once per sprint. An attempt has been made to use branches.	Code has been checked into GitHub several times per sprint. Commit messages are clear, concise and relevant. Branches are used sensibly. There is some evidence of engagement with peers (e.g. code review).	Code has been checked into GitHub several times per sprint. Commit messages are clear, concise and relevant. Branches are used somewhat effectively. There is much evidence of engagement with peers (e.g. code review).	Code has been checked into GitHub several times per sprint. Commit messages are clear, concise and relevant. Branches are used effectively. There is significant evidence of engagement with peers (e.g. code review).	Code has been checked into GitHub several times per week. Commit messages are clear, concise and relevant. Branches are used very effectively. There is extensie evidence of engagement with peers (e.g. code review).
Individual Contribution	Multiplier for criteria marked †	The student has failed to contribute their "fair share" to the project, or has actively prevented others from doing so.					The student has contributed their "fair share" to the project, and has facilitated others in doing so.

Marking Rubric (Investment Pitch)

Criteria marked with a ‡ are shared by the group. All other criteria are individual.

Criterion	Weight	Refer for Resubmission	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency	Professional Proficiency
Basic Competency Threshold	40%	No individual and/or group pitch is delivered, or either pitch is inappropriate.	A broadly appropriate individual and group pitch is delivered.				
Communication Skills	20%	Delivered with little enthusiasm. Little connection with the audience. The product concept has been articulated with little clarity.	Delivered with some enthusiasm, conveying a basic argument. Some connection with the audience. The product concept has been articulated with some clarity.	Delivered with much enthusiasm, conveying a persuasive argument. Much connection with the audience. The product concept has been articulated with much clarity. The aesthetics have impact.	Delivered with considerable enthusiasm, conveying a persuasive argument. Considerable connection with the audience. The product concept has been articulated with considerable clarity. The aesthetics have considerable impact.	Delivered with significant enthusiasm, conveying a very persuasive argument and passion for the project. Significant connection with the audience. The product concept has been articulated with significant clarity. The aesthetics have significant impact.	Delivered with extensive enthusiasm, conveying a very persuasive argument and passion for the project. Extensive connection with the audience. The product concept has been articulated with extensive clarity. The aesthetics have extensive impact.
Handout Quality	10% ‡	There is no handout, or it describes the product concept with little adequacy.	The product concept is described with some adequacy.	The product concept is concisely described with much adequacy. The use of figures and tables is somewhat effective.	The product concept is concisely described with considerable adequacy. The use of figures and tables is quite effective.	The product concept is concisely described with significant adequacy. The use of figures and tables is very effective.	The product concept is concisely described with extensive adequacy. The use of figures and tables is extremely effective.
Market Awareness	10% ‡	The target audience is mentioned briefly. There is little evidence of market research. The proposed product design has few, if any, unique selling points.	The target audience is explicitly defined. There is some evidence of market research. The proposed product design has some unique selling points.	The target audience is well-defined and somewhat appropriate for the design. There is much evidence of market research. The proposed product design has several unique selling points.	The target audience is well-defined and appropriate to the design. There is considerable evidence of rigorous market research. The proposed product design has several unique selling points.	The target audience is well-defined and justifiably mapped to the design. There is significant evidence of rigorous market research. The proposed product design has several unique selling points.	The target audience is very well-defined and justifiably mapped to the design. There is extensive evidence of rigorous market research. The proposed product design has many unique selling points.
Innovation and Creative Flair	10% ‡	Little to no innovation and/or creativity. The product concept is a clone of existing works with only cosmetic alterations, or is derivative of existing works, with only minor alterations.	Some innovation and/or creativity. The product concept is derivative of existing works, but shows emerging divergent and/or subversive thinking.	Much innovation and/or creativity. The product concept is somewhat original, with an attempt at divergent and/or subversive thinking. The product shows promise of fun, engagement, and/or utility.	Considerable innovation and/or creativity. The product concept is original, with evidence of divergent and/or subversive thinking. The product is somewhat fun, engaging, and/or useful.	Significant innovation and/or creativity. The product concept is highly original, with strong evidence of divergent and/or subversive thinking. The product is fun and engaging, or is useful.	Extensive innovation and/or creativity. The product concept is highly original, with very strong evidence of divergent and/or subversive thinking. The product is highly fun and engaging, or is very useful.
Commercial Feasibility	10% ‡	No budget or production plan are proposed, or they are inadequate. No sales projections or return on investment are calculated, or they are untenable. The proposed product design is not viable.	The proposed budget and project plan have some feasibility. The sales projections and/or return on investment have some tenability. The proposed product design is viable.	The proposed budget and project plan have much feasibility. The sales projections and/or return on investment have much tenability. The proposed product design is commercially viable.	The proposed budget and project plan have considerable feasibility. The sales projections and/or return on investment have considerable tenability. The proposed product design is commercially viable.	The proposed budget and project plan have significant feasibility. The sales projections and/or return on investment have significant tenability. The proposed product design is commercially viable and able to inspire much investor confidence.	The proposed budget and project plan have extensive feasibility. The sales projections and/or return on investment have extensive tenability. The proposed product design is commercially attractive and able to inspire considerable investor confidence.