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| **j0439359[1]** | **BTEC NATIONAL AWARD LEVEL 3 IN IT** |

### UNIT 8: COMPUTER GAMES DEVELOPMENT

# KNOWLEDGE AND SKILLS EXERCISE DATE SET: 9th May 2022

# Overall Aim *(See Assessment Objectives –* <https://qualifications.pearson.com/en/qualifications/btec-nationals/information-technology-2016.html> )

This exercise has been written for you to:

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| **Unit 8 Learning Aims A, B & C** |
| * Investigate technologies used in computer gaming Learning Aim A
* Design a computer game to meet client requirements Learning Aim B
* Develop a computer game to meet client requirements Learning Aim C
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During this exercise (and for the summative assessment to have a successful outcome) you must submit work for all of the tasks highlighted red in this document. However, the college expects you to submit work relating to the red **and** orange text. You will be able to achieve the **best outcome** if your work covers the red, orange and green text.

Please note that all work must be submitted to Godalming Online by the published deadlines. **All deadlines are Friday 1.15pm unless otherwise stated**. All work submitted **must be your own work**. Any reference to others’ work must be referenced in a Harvard style bibliography (see Godalming Online IT BTEC Level 3 RQF Resources Page).

During the assignment, any work submitted must be uploaded to your Godalming Online IT BTEC RQF Upload area. Do remember the upload area on GOL has a file upload limit of 20 files with file size limitations. It is your responsibility to ensure that the files ready for assessment are uploaded on time, with file names that indicate their criteria content. Remember to confirm (on GOL) your uploaded files.

**Scenario**

*Dodgy Artists have been approached by an international games company to undertake the design and production of a new computer game. As you have recently been promoted to Junior Games Developer for Dodgy Artists, the Network Manager, Ima Nerd, is concerned that Dodgy Artists does not have sufficient hardware/hardware knowledge of platforms to cope with such a contract. He has assigned to you to investigate any hardware/software/security issues, as well as agreeing to provide you with some games software for you to develop some computer games.*

*In your (new) role as Trainee Developer & Tester, you have been requested to conduct some research into current and emerging games technologies and current social and technological trends in gaming. You will be expected to report your findings to the Marketing team (Caroline Crabbage and Kieran Kind). Alongside this work you will need to focus on the client requirements for a new game, develop your games software skills, design and deliver the new and fully tested game and associated documentation (user guide and technical manual). Fellow devs will be on hand to offer a review of your designs.*

***The client has requested you to write a computer game that will appeal to children aged around 8-12. The game involves navigating a character around an area collecting items and avoiding hazards. Collecting items adds to your score, colliding with hazards uses up lives, of which each game character only has a limited number. For example the player could direct a mouse around a house collecting pieces of cheese, but the mouse needs to avoid cats (hazards) which occupy the house. The game should be timed, with player performance based on the score achieved over a certain time. It should also have levels of difficulty with more difficult levels having more hazards, fewer lives or a shorter time. The game should be exciting and fun to play, as well as visually appealing.***

**Task 1: Investigate Technologies used in Computer Gaming LEARNING AIM A**

The Computer Games industry forms a multi-million £ part of the UK economy. The industry employs thousands of people and games are played and enjoyed by millions of people worldwide. Dodgy Artists have promoted you to a job as a junior programmer as they are set on developing a variety of software including games.

You have been asked to write an article for the Dodgy Artists web site in which you cover the following criteria:

**1(a) Explain how current and emerging technologies impact computer games’ design and development.**

P1

**1(b)** **Explain the current social and technological trends of computer games/gaming.**

P2

**1(c)** **Discuss how current and emerging technologies impact on how games are designed and developed to meet the requirements of the users and the larger computer games industry.**

M1

**1(d)** Provide clear examples as you **evaluate the impact of current and emerging technologies on the design and development of computer games to meet the requirements of the users/game players and the computer games industry,** making comparisons between

different technologies in terms of their impact.

D1

**UPLOAD: *(to Godalming Online)* Task 1 Deadline Date: 13th May 2022**

*Filenames:*

❶ **U8P1P2ImpactAndTrends**

**❷ U8M1ImpactOnDesignAndDev**

**❸ U8D1EvaluateImpact**

**Task 2: Games Software Skills Development**

**2(a)** Using the resources provided and any others that you find, develop your games software skills in GameMaker Studio 2. You should develop skills in the following areas:

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| --- | --- |
| **Create a Sprite** | **Functions** |
| **Creating an object** | **Data types, integers, real numbers, Boolean, characters, strings** |
| **Creating a Room** | **Variables – Instance, Local, Global** |
| **Object moves Left/Right/Up/Down** | **If/Else** |
| **Events: Trigger, Destroy, Rebound, Collision, Step** | **Do** |
| **Scores increase/decreases** | **Repeat/Iteration loops** |
| **Room Backgrounds** | **For** |
| **Add sounds** | **With** |
| **Create & Select Menu (Player or Level)** | **Scripts** |
| **Display message** | **Arrays** |
| **Move to new room as certain number/certain condition is met** | **Comments in Code/In built help** |

Throughout this task you will be required to attend an interview with your supervisor. During the interview you will be asked to demonstrate your games programming skills (see table above) and your understanding of games development and discuss your progress. During this interview you will need to demonstrate your work using an **up-to-date portfolio of evidence.**

**UPLOAD: *(to Godalming Online)*  Task 2 Deadline Date: 20th May 2022**

*Filename:*

❶ **U8SkillsObs**

**Task 3: Design A Computer Game to Meet Client Requirements LEARNING AIM B**

**3(a) Produce designs for a computer game that meet client requirements.** (You may choose the brief above or the Supermassive Games Brief from Unit 9). Create an approved (by your supervisor) specification for your game. Complete the full range of documentation contained in the Design Documentation Folder which you will find on Godalming Online. **The Games Mechanics (user requirements) template must be completed in full to provide evidence of pseudo-code, narrative, action lists or graphical tools, the aim, structure (planned flowchart), storyline, levels and user interaction of your game. You also need to provide storyboards, larger sketched out designs (visual designs) and including user requirements, test plans and technical plans (determine and declare appropriate data types, sound, functions, events, iterations, etc). Make sure all designs are carefully annotated to allow another person to understand your designs.**

**Alpha testing mechanism** should have the following structure (which can be presented in a table): Name of test, purpose of test, expected result, actual result (accompanied by screenshot evidence which should show

‘before, during and after evidence with explanation), corrective action, error messages, evidence of debugging (screenshots which should before, during and after evidence with explanation).

**Beta testing mechanism** using the GOL DCT Testing site your beta testing mechanism should consist of a GOL questionnaire (with 10 varied questions) which covers the following criteria: Genre, content, style, narrative, character, techniques, technical qualities, aesthetic qualities, creative qualities.

 Within the Beta testing mechanism you should allow the respondent to identify areas of

improvement.

P3

**3(b)** **Review the designs with others to identify and inform refinements.** Using MS Teams Peer Review rooms, review the design with **at least two other people** and use their feedback to create an improved version of the design. Upload the Peer Assessment Review sheets from, at least two other people.

P4

**3(c)** **Justify decisions made, showing how the design will fulfil its purpose and client requirements.** Provide a written justification of the design decisions you made when developing the design for the game and show how the design will fulfil its purpose and meet the user requirements outlined in the scenario. Provide updated Designs following Peer Review.

M2

**UPLOAD: *(to Godalming Online)*  Task 3 Deadline Date: 3rd June 2022**

*Filenames: In Half Term*

❶ **U8P3DesignPortfolio**

**❷ U8P4PeerReviewOfDesigns**

**❸ U8M2JustifyDesignDecisions**

**Task 4: Develop & Test A Computer Game to Meet Client Requirements LEARNING AIM C**

**4(a) Produce a computer game to meet client requirements** using GameMaker Studio 2. Take screenshots of the tools you have used to create your game and explain how you have used each tool. Upload your executable game (.exe file) to GOL DCT Testing site. Alongside the finished game you need to produce the following:

* **user documentation for the computer game.** This guide should be aimed at the expected audience (as detailed in the scenario.
* **technical documentation for the computer game.** This technical guide should communicate technical information to a specified audience and therefore should be aimed at any person who may adapt your game in the future and include the technical details of your game. Provide clear evidence of the data types, sound, functions, events, iterations, etc used and how they have been declared in your game.

P5

**4(b) Test a computer game for functionality, usability, stability and performance.** Follow a test strategy to test and debug a computer game using a number of testing methods including test plans (Alpha) and user (Beta) testing to ensure it is fully functional, stable and has suitable performance and usability.

According to your Test Plans (produced in Task 3(a)) carry out the Alpha testing process and provide evidence of the outcomes (before, during & after screenshot evidence). Identify any issues you encounter and any solutions you have been able to perform.

 Collect a minimum of **FIVE** responses to your Beta Testing questionnaire and analyse the results, identifying areas for improvements and making, at least, 2 changes as recommended by the respondents. You need to provide screenshots backing up your comments. Put all of these screenshots into a word-processed document suitably annotated and cross-referenced to the tests.

P6

**4(c)** **Review the extent to which the computer game meets client requirements.**

P7

**UPLOAD: *(to Godalming Online)*  Task 4 Deadline Date: 17th June 2022**

*Filenames:*

❶ **U8P5Game** (Executable to DCT Testing site)

**❷ U8P6Alpha&BetaTestingEvidence**

**❸ U8P7RevewGame**

**Task 5: Optimise & Evaluate**

**5(a)** **Optimise a computer game to meet client requirements** byusing feedback obtained from user testing to create an improved version. Upload the improved game to DCT Testing site of GOL.

M3

**5(b)** **Evaluate the design, creation and optimised computer game against client requirements. Con**sider its effectiveness in meeting the stated requirements. Your evaluation should be supported by evidence from all stages (design, development & optimisation) of the process and draw conclusions as to how the chosen techniques and processes produced a game that better meets the requirements compared to the alternatives.

D2

**5(c) Demonstrate individual responsibility, creativity and effective self-management in the design, development and review of a computer game.** You shouldprovide evidence that you have shown individual responsibility, effective time-management in your design and development of a computer game, making high-quality justified recommendations and decisions. For example, you need to show how you have:

* Planned and managed your time and met targets.
* Reviewed and responded to outcomes including the use of feedback from others
* Behaved appropriately while completing the assignment – including professionalism, etiquette, supportive of others, timely and appropriate leadership, accountability and individual responsibility
* Evaluated outcomes to help inform high-quality justified recommendations and decisions
* Used appropriate methods of communication effectively.

D3

**UPLOAD: *(to Godalming Online)*  Task 5 Deadline Date: 24th June 2022**

*Filenames:*

❶ **U8M3OptimiseGame**

**❷ U8D2EvaluateGame**

**❸ U8DemonstrateIRCESM**

**CONTROLLED ASSESSMENT WEEK**

**27th June – 1st July 2022 – 4.15pm**

**This is a compulsory activity.**

**During this week (in normal lesson time) you will be provided with a Unit 8 Controlled Assessment Assignment. You are requested to submit work to meet the requirements of the assignment. The work you submit must be your own work and you MUST not have copied or adapted any un-sourced work.**

**The work you submit must meet the requirements of Unit 8 and must be uploaded to Godalming Online (in the uploaded area provided for the Controlled Assessment). Only work submitted on-time to Godalming Online\* will be assessed for each units’ Final Mark and you will NOT have a chance to change the final decisions.**

**The file name of each piece of submitted work must clearly identify the Unit and Criteria to which it relates and it must be placed in a folder named:**

**Unit8ControlledAssessment**

**\*Unless otherwise requested by JMH**

UNIT 8

