Dr Ed Powley

Introduction

In this assignment, you are required to **design**, **annotate**, and **write** a series of computer programs according to instructions.

In order for programmers to communicate with each other regarding the technical aspects of a game development project, they must have good computational thinking skills, a strong foundational knowledge of computing principles, applied knowledge of program design notations and annotations, and a working knowledge of particular programming constructs (often as a result of writing their own versions). Such knowledge and skills take time and a sustained effort to develop. For this reason, you will work consistently across the semester by completing a series of bite-sized worksheets.

This assignment is formed of **five** parts: A, B, C, D and E. Each part corresponds to one worksheet. You will produce:

A. A set of level solutions for the puzzle game SpaceChem;
B. Flowcharts and pseudocode for a selection of simple algorithms;
C. Solutions to problems on computability and the theory of computation;
D. A Python program making use of advanced data structures;
E. A solution to an exercise on compilers.

For each worksheet you must:

(i) **Read** the instructions in the worksheet;
(ii) **Complete** all of the problems presented in the worksheet;
(iii) **Bring** your solution to class on the date specified on the worksheet, where it will be marked.

"Individuals and Interactions over Processes and Tools"

"Working Software over Comprehensive Documentation"

"Customer Collaboration over Contract Negotiation"

"Responding to Change over Following a Plan"

— Agile Manifesto

Assignment Setup

This assignment consists of **five formative submissions**, followed by a **single summative submission**. You will receive **immediate informal feedback** after each formative submission.

Each worksheet contains detailed submission instructions; you will generally be required to fork a repository on GitHub and submit a pull request containing your solution. You will be instructed how to do this in module COMP150.

At the end of the semester you will be required make a final summative submission of all five of your worksheet solutions. Prepare a single `.zip` file containing your five worksheet submissions in five separate folders, and upload it to the appropriate submission area on LearningSpace. This submission is for university administration purposes only; at this stage your work has already been marked and you have received feedback, and you should **not** submit any new, unmarked work via LearningSpace.
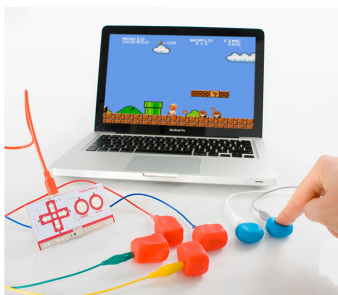
The *MaKey MaKey* allows a multitude of materials to be used to create videogame controllers.

Additional Guidance

Make a submission on time and you will get a basic pass on that worksheet, even if your solution is incorrect or incomplete. A solution meeting all of the correctness and/or functionality criteria on the worksheet is required to demonstrate novice professionalism, with higher grades contingent on your solution being of a high quality. The individual worksheets give more guidance as to what constitutes "quality" for that particular exercise, but bear in mind that a major purpose of these worksheets is to assess your ability to communicate complex computational ideas in English, in notation and in program code.

It is very important to keep up with the worksheets. Missing a deadline results in an automatic mark of 0% for that worksheet. The underlying skills being developed are also critically important to your progression as a programmer, so do not neglect the work. Do not underestimate the time it takes to complete some of the tasks. Do not leave work until the last minute! With programming in particular, trying to "cram" the work just before the deadline is a sure path to failure. Aim for consistent, steady progress over the course of the semester.

Nobody learns in a vacuum: you are allowed, and indeed encouraged, to discuss your work with your peers. However you must be very careful to avoid falling into academic misconduct, in particular plagiarism. If any part of your solution is not your own individual work, you must make this as clear as possible in your submission, for example in source code comments.

FAQ

- **What is the deadline for this assignment?**
  Each worksheet has its own summative deadline, specified on that worksheet and also communicated in class. Falmouth University policy states that formative 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.
- **How will I receive feedback on my work?**
  You will be given verbal feedback on your work during the session in which it is marked. If you require more in-depth feedback or discussion, please book an appointment with your tutor.
- **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

Please see individual worksheets.

Marking Rubric

Criterion	Weight	Refer for Resubmission	Basic Competency	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency
Worksheet A	20%	A reasonable attempt at the worksheet is not submitted by the deadline.	The submission is on time. The submission is a reasonable attempt, but is incomplete or incorrect.	The submission is on time. The submission is complete and correct. The submission has significant quality issues.	The submission is on time. The submission is complete and correct. The submission has some quality issues.	The submission is on time. The submission is complete and correct. The submission has very few quality issues.	The submission is on time. The submission is complete and correct. The submission is of exemplary quality.
Worksheet B	20%	As above.					
Worksheet C	20%	As above.					
Worksheet D	20%	As above.					
Worksheet E	20%	As above.					