COMP110 WORKSHEET 1: SPACECHEM

Version 3.0
Computing
COMP110

Ed Powley

Introduction

SpaceChem is a puzzle game released in 2011 by independent developers Zachtronics. The gameplay consists of solving problems in a visual programming environment, and as such requires many of the skills required of a programmer. This worksheet allows you to begin developing these skills, even if you are not yet comfortable with the syntax of more conventional programming languages such as Python.

To complete this worksheet:

(a) **Play** SpaceChem — it is available on the PCs in the Games Academy, it can be purchased from Steam for around £7, or a free demo version is available;
(b) **Complete** all of the "research" and "production" levels on the planets of Sernimir II, Sernimir IV, and Danopth.

"The planet was a wretched wasteland, but I was so absorbed in the work that I hardly noticed. SpaceChem's reactor technology took what I had learned at university and transformed the principles of science to create new chemicals and compounds. I was enraptured by the process, which effectively amounted to alchemy."

— SpaceChem

Submission instructions

Begin by **forking** the GitHub repository at the following URL:

https://github.com/Falmouth-Games-Academy/comp110-worksheet-1

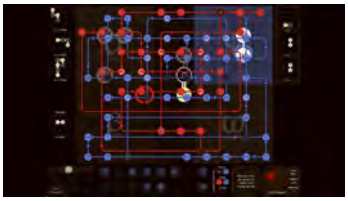
Once each level has been completed, upload a **video** of your solution to YouTube using the in-game upload feature. Create a YouTube playlist for your videos, and add a link to it to the README.md file within the forked repository. Note that SpaceChem disables its YouTube recording feature for "defense" levels; you do **not** need to submit videos for these.

In addition, locate your SpaceChem save file on your hard disk, for example:

C:\Users\<your name>\AppData\Local\Zachtronics Industries\SpaceChem\save\000.user

Upload this file to your forked repository. An automated Travis CI script will be used to scan your save file and determine your game progress, therefore please do **not** rename the file or upload it into a subdirectory.

Attend the timetabled worksheet review session in **Week 2**, ensuring that you have uploaded all material to GitHub before this time.



SpaceChem is a puzzle game in which players must apply computational thinking to build circuits which assemble chemical molecules.

Stretch goals

The basic task for this worksheet is to complete **all** "Research" and "Production" levels on Sernimir II, Sernimir IV, and Danopth, except for the optional challenge level "In-Place Swap".

Extra marks are available for completing one or more of the following stretch goals:

- Solve "Everyday is the First Day" in 300 cycles or fewer;
- Solve "It Takes Three" in 20 symbols or fewer;
- Solve "Challenge: In-Place Swap" from Danopth, and "An Introduction to Sensing", "Prelude to a Migraine" and "Random Oxides" from Alkonost.

Marking Rubric

To **pass** this assignment (achieve 40% or more), you must submit a reasonable attempt at the worksheet by the formative deadline stated on LearningSpace.

Criterion	Weight	Near Pass	Adequate	Competent	Very Good	Excellent	Outstanding
Basic competency threshold	30%	A reasonable attempt at the worksheet was not submitted by the formative deadline. Breach of academic integrity.					
PROCESS: Task completion	70%	No tasks have been completed.	At least one level has been completed and correctly submitted via YouTube and GitHub.	All "Research" and "Production" levels on Sernimir II, Sernimir IV, and Danopth, except for the optional challenge level "In-Place Swap", have been completed and correctly submitted via YouTube and GitHub.	All "Research" and "Production" levels on Sernimir II, Sernimir IV, and Danopth, except for the optional challenge level "In-Place Swap", have been completed and correctly submitted via YouTube and GitHub. One of the stretch goals listed above has been completed.	All "Research" and "Production" levels on Sernimir II, Sernimir IV, and Danopth, except for the optional challenge level "In-Place Swap", have been completed and correctly submitted via YouTube and GitHub. Two of the stretch goals listed above has been completed.	All "Research" and "Production" levels on Sernimir II, Sernimir IV, and Danopth, except for the optional challenge level "In-Place Swap", have been completed and correctly submitted via YouTube and GitHub. All three of the stretch goals listed above has been completed.