Week 14/16 Assessed Coursework

MIPS

Deadline Friday Week 16 (24/2/23)

Your task for this exercise is to draw a musical note that interacts via the command line, using the Bitmap Display you saw in week 12 and the syscall function built into MIPS. Your program should display a string (essentially a menu) of instructions on the screen using syscall, then accept a user input of an integer in order to determine what action (cls, stave, note, exit) to carry out. A second integer input will enable the user to select a colour – there must be at least 2 colours used. There is no requirement to know anything about musical notes – all the relevant information is provided in the slides.

The figure below shows an advanced program that can draw a user defined note A.

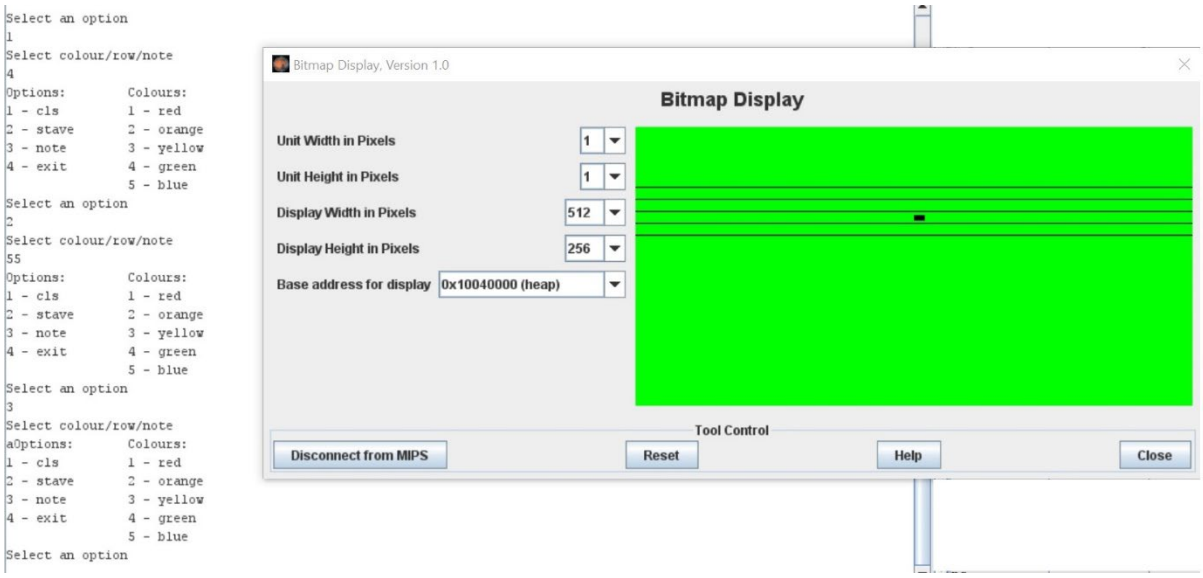

Figure 1 Drawing on screen in Mars

Marking Scheme

	Weighting
Functionality	50%
Code design	25%
Commenting, clarity	20%
Self-grading	5%

The details of each category can be seen on the following page.

Functionality

A	Fulfils requirements for B. Can accept multiple char inputs for a note and draw a square in the appropriate place on screen. Can play the note.
B	Fulfils requirements for C. Can select cls and stave (5 horizontal lines) options. Can choose colour of screen or position of stave. Can deal with a bad option by exiting or repeating question. Can repeat option selection.
C	Successfully prints instructions, inputs the cls option and responds by colouring screen. Allows the user to input screen colour repeatedly and responds to that, changing the colour, features at least 3 colour options. Exits the program properly.
D	The menu is printed to the screen using syscall, and the background is coloured in a single colour (not blue or black). The read integer is attempted, and tells the screen to colour. May demonstrate these elements separately.

Code design

A	Uses spill when calling procedure(s) if required. Uses procedure(s) effectively.
B	Makes good use of a procedure (for the stave) and labels. Very little repeated code.
C	Implements loops using branch and labels well. May have some repeated code.
D	No structure to code. Significant repeated code.

Comments/clarity

A	Clear structure (and helpful comments) about variable use. Well commented throughout. Spaced and organised for clarity.
B	Good use of comments. Reasonable organisation, can follow program reasonably well. Variable use is sensible (ie $a for passing in and $v to return from parameter).
C	Sparse or sometimes unhelpful comments. Some consistency in use of variables. Some effort at organisation.
D	Few comments. Difficult to read code.