

Digital Skills Academy

FUNDAMENTALS OF PROGRAMMING

ASSIGNMENT 2



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A variation on the mastermind game



The java OO Program assignment – code breaker

Write the code breaker program as per spec below with text based display using the Javabook class library

Following an introduction screen that explains the game. the game starts by choosing the code patch which is a sequence of four colours from the following available colours red(R), orange (O), yellow (Y), green (G), blue (B), Indigo (I), and violet (V). The code patch is not displayed to the user only 4 lines are displayed (_ _ _ _) and lives = 8.

The user enters a string of four characters which is their guess at the sequence of 4 letters chosen by the computer.

The user input is compared to the code patch and the following feedback is provided:

- If the two code patches match, the game says **YOU WIN, do you want to play again (Y/N)?**
- If one or more colours between the two colour patches match, display the positions where the colours match. If the colour is correct but the position is wrong for one or more colours give the user a clue as to how many colours there are in the in the users patch that are not in the correct position. If the same colour is used twice in the users patch and twice in the computers patch but the positions are wrong the clue will have a value of 2. if the colour patch has not been guessed then a life is lost and the user is asked : **Enter a sequence a 4 character sequence from ROYGBIV or 0 to exit:**
- If the number of lives is zero following this guess and the user has not won, then display, the code patch and. **YOU LOOSE, do you want to play again (Y/N)?**
- If instead of entering in a code sequence the user enters 0, or there are 0 in the code patch entered, exit the game (boss kill switch)
- If the same sequence is entered twice or more, inform the user that duplicate patches are not allowed and ask then to re enter a new code patch. No life is lose for a duplicate entry.

Display the game as per the example screens on the next page.

The code breaker screens

Introduction

The fate of the world rests on your shoulders. A lethal virus is about to be unleashed on the web. You can stop the virus release if you can guess the sequence of 4 colors that delete the virus.

The possible colors are

R - Red

O - Orange

Y - Yellow

G - Green

B - Blue

I - Indigo

V - Violet

You have only 8 chances to guess the code. Are you ready to save the world (Y/N)?

Lives: 8

Code: _ _ _ _ Guessed : _ _ _ _ Clues:

Enter a sequence a 4 character sequence from the following values ROYGBIV or 0 to exit:

Lives: 4

Code: _ _ _ _ Guessed : _ _ _ _ Clues:

Code: R _ _ _ Guessed : R O Y G Clues: 1

Code: R _ _ _ Guessed : R B G I Clues: 2

Code: R G _ _ Guessed : R G V I Clues: 2

Code: R G I V Guessed : R G I V Clues: 0

YOU WIN !!

Play again Y/N:

Lives: 0

:

:

Code: R _ _ _ Guessed : R V V V Clues: 0

YOU LOOSE, the code was : R G I V

Play again Y/N:

Submission and other stipulations

- A zip file containing
 - A zip of the java program, there must be a run.bat
 - An eLabBook containing all your program documentation as per the format we have used up to now
- You must use the Javabook classes for data entry and displaying the screens
- A text based version of code breaker is what is required NOT a picture version

Grading Overview

With regard to programming assignments. The most marks are given for working code, associated documentation and references. While the code may not fulfill ALL the criteria, constructs or requirements of the assessment, having working code demonstrate your ability to follow programming practice – building from the small to the complex. A detailed marking rubric is available at the end of the document, the following is an overview

Evidence	Total %	% for this Assignment towards overall Grade
Basic Working code demonstrating a basic set of the programming features and disciplines required by the assignment.	0 – 20%	40%
Practical Working code demonstrating most of the programming features and disciplines required by the assignment.	20% - 30%	
Expert Working code demonstrating a ALL of the programming features and disciplines required by the assignment. Whilst demonstration independent research, critical thinking and a deep understanding of programming processes e.g approaches\error handling, plus the design constructs required by the assignment.	30% - 40%	

Marking Breakdown

- **Compiling and Running Code** **15%**
- **Documentation** **20%**
- **Functionality Implemented** **45%**
 - Marks per element implemented and how it was implemented
 - Understanding off OO principles
- **Code Design and Presentation** **20%**
 - Code layout
 - User interface

Each of the marks above is considered on the following scale

<i>None = component not present, Basic = present but not complete or has error. Practical= present and good to very good implementation based on requirement. Expert demonstrates good design, process and understanding</i>			None	Basic	Practical	Expert
			0	1 - 4	5 - 7	8 - 10

Due Date

- **Sunday 14th July 2013, 11:50pm**