Level 2 Create software components using Java

(7266/7267-205)

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e-Quals
Assignment guide for Candidates
Assignment A

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Level 2 Create software components using Java (7266/7267-205) Assignment A

Introduction – Information for Candidates

About this document

This assignment comprises part of the assessment for Level 2 Create software components using Java (7266/7267-205).

Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will **not** be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance

The recommended time allowance for this assignment is **4** hours.

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Candidate instructions

Candidates are advised to read **all instructions** carefully before starting work and to check with your assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: 4 hours

Assignment set up: A scenario is provided below for this assignment.

This assignment is made up of **two** tasks

- **Task A** - provides a detailed design specification that should be followed by candidates when developing their program.
- **Task B** - provides presentation criteria that should be followed by candidates when producing their work.

Scenario

A games software development company, CheckMate Associates, is developing a games program for use on the Internet. It will be run using a Java applet. The applet will allow a user to play the classic game of Hangman in which the player is given the number of letters in a word and then, by guessing letters, has to complete the word. As a contracted employee of CheckMate Associates, you have been asked to create and test a GuessWord applet that fulfils the specification.

The outline specification for the applet states that

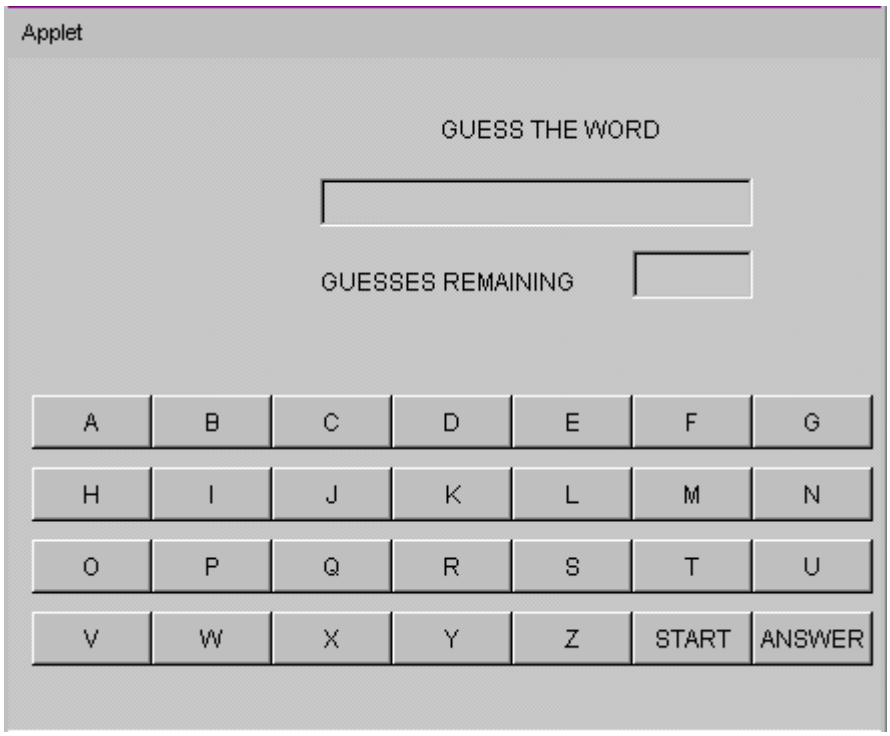
- the player is given the number of letters in a word, initially displayed as asterisks (*), and then, by guessing letters, has to complete the word
- if a wrong letter is chosen i.e. one that is not in the word, the player loses a life
- if the guessed letter is in the word then it is inserted in the correct position and the (incomplete) word displayed
- the games continues until either the player has solved the word or has lost all their lives
- if the player guesses the word before they have lost all their lives, they have 'won'
- if the player loses all their lives before they guess the word they have 'lost' the game.

Task A

Candidates should use the following detailed specification to fulfil the company's requirements:

1 Global variables may be declared, but as far as possible, local variables should be used.

2 Create a GuessWord applet that has a Graphical User Interface (GUI) similar to that shown in the following picture.



3 The title GUESS THE WORD must be produced as a Label with the text in red.

4 The characters of the word to be guessed are to be written into the read only TextField beneath the title. This TextField must be set to 24 characters in width.

5 The title GUESSES REMAINING is a Label with the text set to red.

6 The number of guesses remaining is to be shown in a read only TextField which is 3 characters wide and on the same line as the GUESSES REMAINING Label.

7 Letters are chosen by clicking the mouse on one of a grid of buttons representing the letters of the alphabet.

8 Selecting the button START must clear the two TextFields ready to start the game. The program must then select a word from the following list in the order shown

MEMORY COMPUTER PRINTER TROUSERS BUTTERCUP

9 Each letter of the selected word should be displayed at the right of the 24 character TextField as an asterisk (*).

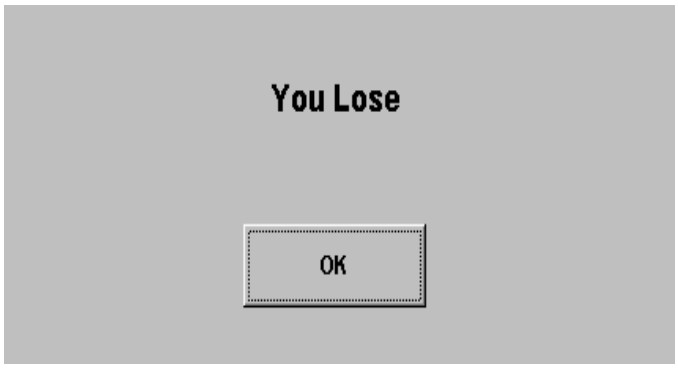
10 A player has 8 ‘lives’ in which to guess the word.

11 The number of guesses remaining should be displayed at the right of the three character TextField.

12 The player selects a letter by clicking the mouse on the corresponding button. If the letter is in the hidden word then it is displayed in its correct position(s) in the 24 character TextField. If

the letter is not in the word then the number of guesses remaining should be reduced by one and its value displayed in the three character TextField.

13 If the number of guesses remaining reaches zero and the hidden word has not been solved then a dialog box should appear with 'You Lose' in the centre in a large red font. An OK button should be used to allow the player to return to the game.



14 If the word is completed before the number of guesses remaining has been reduced to zero then a dialog box should appear with 'You Win' in the centre in a large blue font. An OK button should be used to allow the player to return to the game.

15 Selecting the ANSWER button should display the current word in its TextField and clear the guesses remaining TextField.

16 Prepare test data and expected results. Test the applet, check the expected results against the actual results and resolve any logical or run-time errors.

17 Provide evidence that the applet complies with the specification eg screen prints when the program is running.

18 Print a listing of the code.

19 Produce a screen print to show the GUI when the applet starts.

Task B

Candidates should follow the criteria below when producing their work:

1 The program conforms to the design specification.

2 The program uses the most appropriate data type(s).

3 The program syntax is consistently indented to aid readability.

4 The program is commented.

Note

- Candidates should produce the following for their assessor:
    - A printed program listing.
    - Printout of the GuessWord applet (screen print).
    - Test data and expected results.
    - Evidence that the applet works correctly.
- At the conclusion of this assignment, hand all paperwork and removable media to the test supervisor.
- Ensure that your name is on the removable media and all documentation.
- If the assignment is taken over more than one period, all removable media and paperwork must be returned to the test supervisor at the end of each sitting.

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