



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

MAIN CAMPUS

CIT 211: EVENT-DRIVEN PROGRAMMING

Date: 22nd February, 2018

Time: 3.30 - 6.30 pm

INSTRUCTIONS:

- Answer question ONE and any other TWO questions
- Write your registration number on all sheets of the answer book used.
- Use a NEW PAGE FOR EVERY QUESTION attempted, and indicate number on the space provided on the page of the answer sheet.
- Fasten together all loose answer sheets used.
- Mobile phones and PDAs are NOT allowed in the examination room.



QUESTION 1:(30 MARKS)

- i. Define event driven programming (1 mark)
- ii. What method call should be used to set the close-window button of a JFrame? (1 mark)
- iii. Which method should be called to make components visible on a container? (1 mark)
- iv. When the ActionListener interface is implemented, which method must be overridden? (1 mark)
- v. What are the differences between Frames and applets? (6 marks)
- vi. Applets have life-cycles. Write an example program that displays the whole applet life-cycle. (6 marks)
- vii. In case the method actionPerformed is omitted from a program that implements the ActionListener interface, will the program compile? What will the error be? (2 marks)
- viii. Components are instantiated using their constructors and properties declared using their methods. Which methods does a TextField component have? Write syntaxes of how each method should be used. (4 marks)
- ix. The WindowListener has abstract methods defined in it. Which ones are they? Explain what happens when each of these methods is overridden. (4 marks)
- x. Write a simple program showing successful database connection. (4 marks)

QUESTION 2: (20 MARKS)

- i. Write a program that implements a simple text editor. Use a JTextArea for the area that the user can enter text. Add a button that allows the user to save the text to a file and a button that allows the user to load the text from a file. (8 marks)
- ii. Write a program that displays a table's data in a frame through java. (8 marks)
- iii. What are the difference between a label and a textfield? (4 marks)

QUESTION 3: (20 MARKS)

- i. Design and code a Swing GUI calculator. Your calculator will have two text fields that the user cannot change: One labeled "Result" will contain the result of performing the operation, and the other labeled "Operand" will be for the user to enter a number to be added, subtracted, and so forth. The user enters the number for the "Operand" text field by clicking buttons labeled with the digits 0 through 9 and a decimal point, just as in a real calculator. Allow the operations of addition, subtraction, multiplication, and division. Use a GridLayout manager to produce a button pad that looks similar to the keyboard on a real calculator.

When the user clicks a button for an operation, the following occurs: the operation is performed, the "Result" text field is updated, and the "Operand" text field is cleared. Include a button labeled "Reset" that resets the "Result" to 0.0 . Also include a button labeled "Clear" that resets the "Operand" text field so it is blank.

Hint: Define an exception class named DivisonByZeroException . Have your code throw and catch a DivisonByZeroException if the user attempts to “divide by zero.”

(12 marks)

- ii. Write a java program that draws a string, a straight line and a circle on an applet container. (8 marks)

QUESTION 4: (20

- i. Design and code a Swing GUI for a two-player tic-tac-toe (noughts and crosses) game on a 3 * 3 game board. The JFrame should use a BorderLayout with a JLabel in the NORTH region to display messages (e.g., who won the game), and a JPanel in the CENTER region to display the game board. For the game board in the JPanel, use a GridLayout manager with a 3 * 3 layout of JButtons in each cell to display the game board. The button labels should initially be blank. When a player clicks on an empty button, an appropriate “X” or “O” should be placed in the label field of the button. If there is a winner (three in a row), then the program should display the winner in the JLabel located at the top of the window. If all nine cells have been filled without a winner, the program should indicate that there is a tie. (12 marks)

- ii. The mouseListener has abstract methods defined in it. Which ones are they? Explain what happens when each of these methods are overridden. (8 marks)

QUESTION 5: (20 MARKS)

- i. Write a GUI program that uses the methods in the Graphics class to draw a smiley face when the window is activated, and a frowny face when the window is deactivated. This will require use of a WindowListener to detect the activation or deactivation events. (10 marks)
- ii. Write a code to create a write a code to create a JMenuItem with “Hello” as its displayed text (when it is choice in a menu) but with “Bye” as its action command. (8 marks).
- iii. Define a component and give two examples. (2 marks)