

Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
400 level 1st Semester Examination – May/July 2017
CST421-2 Software Localization



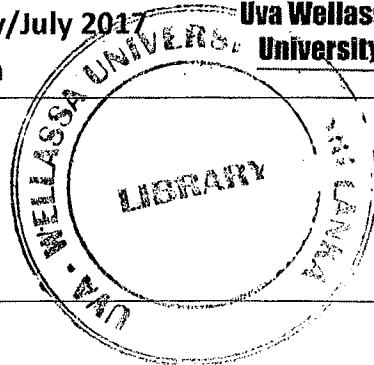
Instructions to candidates

Duration: Two (02) hours

Number of questions: Four (04)

Answer all the questions

Mark allocation: 100



1.
 - a. Define the term "locale" in the context of software localization with a suitable example to illustrate its importance when reaching out to culturally and linguistically diverse markets. (4 mark)
 - b. "Software internationalization and software localization are two interrelated processes". Do you agree with this statement? Justify your answer. (5 mark)
 - c. Explain four (04) reasons to perform testing in different languages while testing the localized application. (8 mark)
 - d. Briefly explain the following testing types available in software localization process by providing two (02) example test scenarios for each testing type.
 - i. Pseudo testing
 - ii. Cosmetic testing (8 mark)

2.
 - a. ASCII, Extended-ASCII and UNICODE are the major transition stages in character encoding in computer systems.
 - i. What was the extended-ASCII encoding designed to solve? Illustrate your answer using your local language as an example. (4 mark)
 - ii. What problem was UNICODE designed to solve and how does it solve? (4 mark)
 - b. Find the UTF-8 binary representation of the Sinhala letter "අ" assuming the decimal code values for the letter is 3,461. Show the steps clearly. (5 mark)
 - c. Briefly explain two (02) different encoding techniques used to represent UNICODE characters. (6 mark)
 - d. Suppose that a document contains English and Sinhala characters. By using UNICODE encoding schemes, what is your recommended strategy to reduce the size of the file? Explain using an example. (6 mark)

3.

- a. "It is important to create and maintain terminology from the beginning of a software localization project ". Discuss the validity of the statement with examples. (5 mark)
- b. "Colors and sounds matter in localization". Discuss this statement with examples. (6 mark)
- c. Explain three (03) important design techniques which can be used to make a localized software application. (6 mark)
- d. Explain the localization process using your 2nd year or 3rd year group project as an example. (8 mark)

4.

- a. Briefly describe four (04) common models available to perform database localization. (8 mark)
- b. Briefly explain the main steps you need to follow when you are localizing a simple Java application. (5 mark)
- c. Following is a loan application which is implemented using Java language. You are required to internationalize the "Calculate Payment" button functionality. **Rewrite the code** using Java internationalization concepts and use your own locale file (state it with your answer) for the default language to make your code complete. The developer's code relevant to the functionality is mentioned below for your reference.

Calculate Monthly Installment

Loan Amount	1000
Interest Rate (%)	7.5
Years	5

Your monthly installment will be \$20.04

Hints:

- Source Project name: "LoanApp"
- Default locale file name: "localeBundle"

- Global variables called language and country will store the current language and the country respectively.
- Relevant packages are already added to the project.

Developer's Code for "Calculate Payment" Button Functionality:

```
private void CalculateBtnActionPerformed(java.awt.event.ActionEvent evt) {  
    double I, partial, denominator, installment;  
  
    double amount = Double.parseDouble(amountField.getText());  
    double rate = Double.parseDouble(rateField.getText());  
    int numPeriods = Integer.parseInt(timeField.getText());  
  
    numPeriods *= 12;  
    if (rate > 0.01) {  
        I = rate / 100.0 / 12.0;  
        partial = Math.pow((1 + I), (0.0 - numPeriods));  
        denominator = (1 - partial) / I;  
    } else {  
        denominator = numPeriods;  
    }  
  
    installment = amount / denominator;  
    messageLabel.setText("Your monthly installment will be " + installment);  
}
```

(12 mark)

