RICHFIELD

FACULTY OF INFORMATION TECHNOLOGY

PROGRAMMIG 621 ASSIGNMENT

Name & Surname:_____ **ICAS / ITS No:** _____

Qualification:_____**Semester:**_____**Module Name:** _____

Date Submitted: _____

ASSESSMENT CRITERIA	MARK ALLOCATION	EXAMINER MARKS	MODERATOR MARKS
MARKS FOR CONTENT			
QUESTION ONE	**30**		
QUESTION TWO	**30**		
QUESTION TWO	**30**		
TOTAL	**90**		
MARKS FOR TECHNICAL ASPECTS			
TABLE OF CONTENTS Accurate numbering according to the numbering in text and page numbers.	**2**		
CODE Program text indentation Use of constant, variable and structure names Comments	**5**		
REFERENCES According to the Harvard Method	**3**		
TOTAL	**10**		
TOTAL MARKS FOR ASSIGNMENT	**100**		
Examiner's Comments:			
Moderator's Comments:			
Signature of Examiner: O. Elegbede **Signature of Moderator:**			

Assignment Instructions

1. All assignment must be typed, not handwritten.
2. Every assignment should include the cover page, table of contents and a reference list or bibliography at the end of the document
3. A minimum of five current sources (references) should be used in all assignments and these should reflect in both in-text citations as well as the reference list or bibliography
4. In-text citations and a reference list or bibliography must be provided. Use the Harvard Style for both in-text citations and the reference list or bibliography
5. Assignments submitted without citations and accompanying reference lists will be penalized.
6. Students are not allowed to share assignments with fellow students. Any shared assignments will attract stiff penalties.
7. The use of, and copying of content from websites such as chegg.com, studocu.com, transtutors.com, sparknotes.com or any other assignment-assistance websites is strictly prohibited. This also applies to Wiki sites, blogs and YouTube.
8. Any pictures and diagrams used in the Assignment should be properly labelled and referenced.
9. Correct formatting as indicated on the Cover Page should be followed (font-size 12, font-style Calibri, line spacing of 1.0 and margins justified).
10. All Assignments must be saved in PDF using the correct naming-convention before uploading on Moodle. E.g. *StudentNumber_CourseCode_Assignment (402999999_WBT512A_Assignment).*
11. For each question in the assignment, paste the screenshot of the output. Below this screenshot, paste all the code for that particular question.

QUESTION 1 (30 MARKS)

Write a function checkConditions that takes a two-dimensional array of integers, array, and a set of integers, conditions, as input. The function should return 0 if all elements in the array are contained in the conditions set. If any element in the array is not in the conditions set, the function should return -1.

Function signature:

```
int checkConditions(int array[][], int rowSize, int colSize,
std::set<int> conditions)
```

Write the implementation of the function checkConditions without using any built-in functions for searching elements in sets. You should implement your own algorithm for searching elements in the conditions set.

Example:

```
int arr[3][4] = {{1,2,3,4},{5,6,7,8},{9,10,11,12}};
std::set<int> conditions = {1,2,3,6,7,8};
int result = checkConditions(arr, 3, 4, conditions);
//result will be 0 since all elements in the array
 are in the conditions set.
```

QUESTION TWO (30 MARKS)

Write a c++ program to calculate the charges for three customers based on their purchase details, taking into account various factors such as base charge, item charge, discounts based on purchase amount, and more. The program should prompt the user for the necessary information and display the calculated charges for each customer in a specified format.

Formula: `charge = base_charge + items * item_charge`

QUESTION THREE (30 MARKS)

Create a C++ program that implements a class hierarchy for temperature conversion. The program should include a base class that stores a temperature value and a

derived class that performs the conversion from one temperature unit to another. The derived class should also provide a method for prompting the user to input the temperature value and a method for converting the temperature value. The program should also include logic for determining the number of temperature conversions to perform based on user input.

END OF ASSIGNMENT