



Document Details			
Version Number	Last Updated	Developed/Edited By	Validation Date
1.2	17/07/2018	Godwin	September 2018
Training Package	ICT Information and Communications Technology Training Package		
Qualification Title	ICA40515 AWF2 Certificate IV in Programming		
Course Title	Programming I		
Assessment Title	AT2 - Practical		
Brief Description of Assessment Task			
A practical programming assessment that will require debugging and testing to compete logic (truth) tables.			
Units of competency, elements to be assessed			
National Code	SIN	Competency Title	Elements of Competency
ICTPRG414	AUV79	Apply introductory programming skills in another language	1. Apply basic language syntax and layout 2. Code using data structures 3. Code using standard algorithms 4. Debug code 5. Document activities 6. Test code
ICTPRG405	AUV52	Automate processes	1. Develop algorithms to represent solution to a given problem 2. Describe structures of algorithms 3. Design and write script or code 4. Verify and review script or code 5. Document script or code
Date of Assessment	Session 4	Completed by	Session 6
Instructions to Students	The design, coding, debugging, testing and simple documentation of a C#.NET application as described on the following page.		
Resources Required	Reference books / Internet / Blackboard / Visual Studio 2017		
Instructions to Lecturer/Assessor	Collect and assess all application activities at the end of the session.		
Lecturer's Details (Add your lecturers details below)			
Name			
Email			
Campus			

Students to sign this document when submitting an assessment

Date Submitted:		
STUDENT DECLARATION		
<ul style="list-style-type: none"> I have read and understand the details of the assessment. I have been informed of the conditions of the assessment and the appeals process. I agree to participate in this assessment. I certify that the attached is my own work. 		
Student ID	Student Name	Student Signature



Assessment Feedback (Lecturer and Student Copy)			
Assessment Title	AT2 - Practical		
Candidate name		Attempt No	
Assessor name			
Performance demonstrated by this assessment is	Satisfactory <input type="checkbox"/>	Not Yet Satisfactory <input type="checkbox"/>	
	Assessment outcome and feedback received on	Date	
Assessor Comments:			
<div></div>			
Candidate signature: <i>(once feedback has been received)</i>		Date	
Assessor signature: <i>(once feedback has been provided)</i>		Date	

Practical Assessment AT2

In this assessment you will download and open the Windows Forms Application provided by your lecturer (or located on Blackboard). Once you have opened the assessment you will need to debug and test the “light switch” buttons and examine the output to determine the correct logic. Then add additional code which contains a series of selection constructs (If-Else statements). You **must** use the pseudo code provided below to add the additional functionality. Finally you will need to complete the logic truth tables and ensure the application is functioning correctly.

Submission Requirements

Create a report using a word document which has the following headings and information:

Title Page

Student Name, ID, Date, Assessment Title.

Debug Session (Task One)

Screen captures of the debug session for the passage two light switch.

Code Corrections (Task Two)

Your program code for the three methods with suitable comments to the corrected logic code. Add comments for each of the three methods.

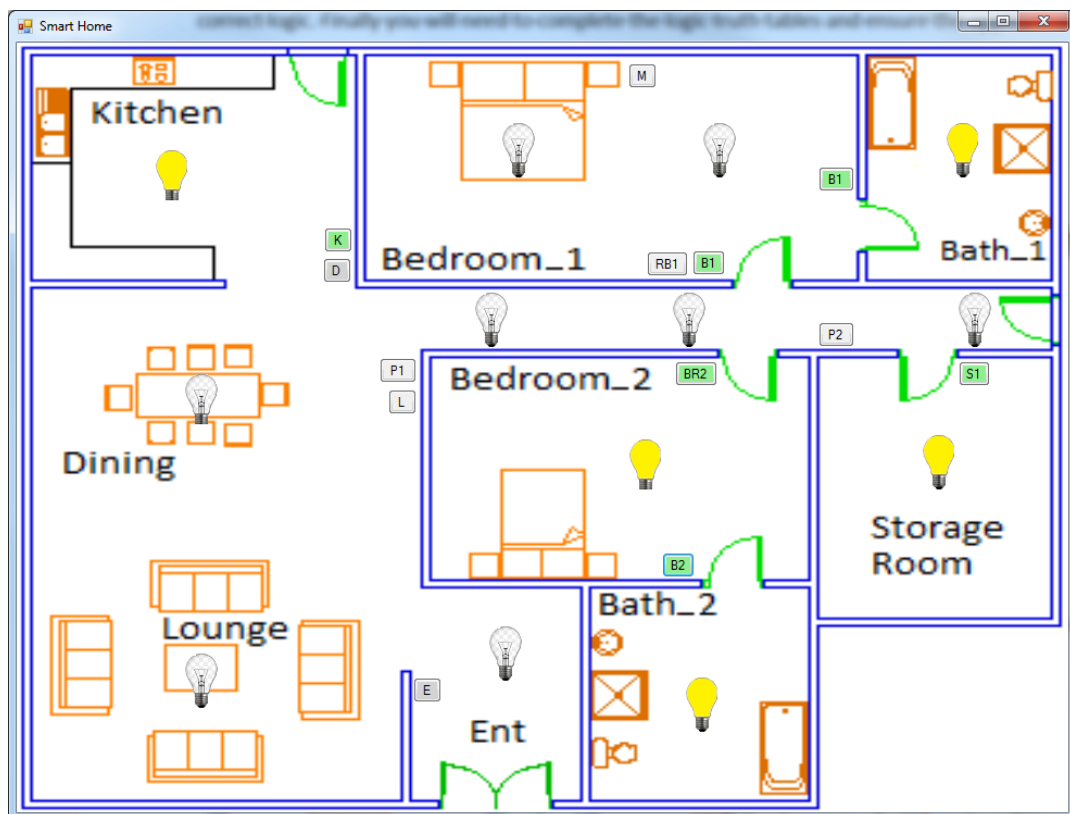
Definitions and True Tables (Task Three)

The answer to Question One.

Truth Tables for Question Two, Three and Four

Note: Ensure your report has the appropriate headers and footer with page numbers, titles, etc.

GUI Layout and Naming Conventions



Pseudo Code for Working Button Methods (This code is fully functional and does not require editing)

Storage Room Button

```
If (LightStatus == FALSE)
    Turn Storage Room light ON
    Change LightStatus = TRUE
Else
    Turn Storage Room light OFF
    Change LightStatus = FALSE
End
```

Bedroom One Button

```
If (LightStatus)
    Turn both Bedroom lights OFF
    Change LightStatus = FALSE
Else
    Turn both Bedroom lights ON
    Change LightStatus = TRUE
End
```

Bathroom One (use one method for two buttons)

```
If (LightStatus)
    Turn bathroom light OFF
    Change LightStatus = FALSE
Else
    Turn bathroom light ON
    Change LightStatus = TRUE
End
```

Bedroom Two Button

```
If (LightStatus)
    Turn Bedroom_2 light OFF
    Change LightStatus = FALSE
Else
    Turn Bedroom_2 light ON
    Change LightStatus = TRUE
End
```

Bathroom Two Button

```
If (!(LightStatus))
    Turn Bathroom_2 light ON
    Change LightStatus = TRUE
Else
    Turn Bathroom_2 light OFF
    Change LightStatus = FALSE
End
```

Kitchen Button

```
If (LightStatus)
    Turn kitchen light OFF
    Change LightStatus = FALSE
Else
    Turn bathroom light ON
    Change LightStatus = TRUE
End
```

Passage One Button

```
If (Passage_1_LightStatus OR Passage_2_LightStatus)
    Turn both passage_1 lights OFF
    Turn passage_2 light OFF
    Passage_1_LightStatus = FALSE
    Passage_2_LightStatus = FALSE
Else If (Passage_1_LightStatus)
    Turn both passage_1 lights OFF
    Passage_1_LightStatus = FALSE
Else
    Turn both passage_1 lights ON
    Passage_1_LightStatus = TRUE
End
```

Task One

Debug Session

The passage two light switch is faulty, run the application and then examine the code. You will need to use the Debug features of Visual Studio to identify the logic flaws with the passage two light switch. Add several breakpoints so the various variables can be identified. You will need to record this debug session(s) with a series of screen captures. Compare the C# code with the pseudo code below and make the necessary changes to the C#. The pseudo code is correct!!

Pseudo Code for Passage Method Code (This logic is Correct)

Passage Two Button

```
If (!(Passage_2_LightStatus) && Passage_1_LightStatus)
    Turn both passage_1 lights ON
    Turn passage_2 light ON
    Passage_1_LightStatus = TRUE
    Passage_2_LightStatus = TRUE
Else IF (Passage_2_LightStatus && Passage_1_LightStatus)
    Turn both passage_1 lights OFF
    Turn passage_2 light OFF
    Passage_1_LightStatus = FALSE
    Passage_2_LightStatus = FALSE
Else
    Turn both passage_1 lights ON
    Turn passage_2 light ON
    Passage_1_LightStatus = TRUE
    Passage_2_LightStatus = TRUE
End
```

Task Two

Code Corrections

Add additional code for the three button methods as outlined below,

1. The code for the dining room has not been added to the Dining_Switch_Click method. Use the pseudo code example to get this switch working correctly.
2. The code for the lounge room has not been added to the Lounge_Switch_Click method. Use the pseudo code example to get this switch working correctly.
3. The code for the entrance room has not been added to the Entrance_Switch_Click method. Use the pseudo code example to get this switch working correctly.

Pseudo Code for NONE Working Methods (Add code that reflects the following logic)

Dining Room Button

```
If (DiningLightStatus)
    Light = OFF
Else
    Light = ON
```

Lounge Room Button

```
If (DiningLightStatus OR LoungeLightStatus OR EntranceLightStatus)
    Dining Room Light = OFF
    Lounge Room Light = OFF
    Entrance Light = OFF
Else
    Dining Room Light = ON
    Lounge Room Light = ON
```

Entrance Button

```
If (!(EntranceLightStatus) AND !(DiningLightStatus))
    Entrance Light = ON
```

```

        Dining Room Light =ON
    Else If (!(EntranceLightStatus))
        Entrance Light = ON
    Else
        Entrance Light = OFF

```

Task Three

Answer and complete the following questions:

Question One

Provide a definition and C# code examples of DeMorgan's Laws.

Question Two

Complete the truth table for the Master Switch Button

C# code: `If (bedroom_1_Light_Status OR bath_1_Light_Status)`

Logic: `(A || B)`

A	B	A or B
Bedroom 1 Light Status	Bath 1 Light Status	
T	T	T

Question Three

Complete the two truth tables for the Passage Two Light Switch Button

C# code: `If (!(passage_2_Light_Status) && passage_1_Light_Status)`

Logic: `((! A) && B)`

A	NOT A	B	!A and B
Passage 2 Light Status	!(Passage 2 Light Status)	Passage 1 Light Status	
T	(!T)is F	T	F

C# code: `Else IF (passage_2_Light_Status && passage_1_Light_Status)`

Logic: `(A && B)`

A	B	A and B
Passage 2 Light Status	Passage 1 Light Status	
T	T	T

Question Four

Complete the truth table for the Lounge Room Switch Button

C# code: If (dining_Light_Status OR lounge_Light_Status OR entrance_Light_Status)

Logic: (A || B || C)

A	B	C	A or B or C
Dining Light Status	Lounge Light Status	Entrance Light Status	
T	T	T	T

For this assessment, zip the project folder and associated word documents, then upload

End of Assessment Task 2