

Assignment [40 Marks]

BHE1413

Computer Programming

Taxonomy Level					
Cognitive		Psychomotor		Affective	
C1 – Remember	C4 – Analyze	P1 – Imitation	P4 – Articulation	A1 – Receiving	A4 – Organization
C2 – Understand	C5 – Evaluate	P2 – Manipulation	P5 – Naturalization	A2 – Responding	A5 – Internalizing
C3 – Apply	C6 – Create	P3 – Precision		A3 – Valuing	

Mapping to CO/PO					
CO2	Analyze different types of BJT in circuit configurations				
PO Mapping for this Assessment					
PO1	Knowledge	PO5	Modern Tools Usage	PO9	Ethics
PO2	Analysis	PO6	Teamwork	PO10	Project Management
PO3	Design	PO7	Communication	PO11	Environment & Sustainability
PO4	Investigation	PO8	Engineer & Society	PO12	Life-long Learning

Assessment Details			
Lab/Technical Report	Presentation / Demo	Practical Assessment	Others
Submission Due Date :		No. of Group Member :	2 Students / group

GROUP MEMBERS:			
No.	Student ID	Student Name	Section/Grp
1			
2			
3			
4			

Instrument/parts

1. Assignment Kit
2. Computer with CodeBlocks installed

Introduction

The assignment kit consists of three (3) parts:

1. CKIT Hardware (CKIT)
2. USB cable
3. Template and Header files (<https://github.com/VmfadhilV/CKIT>)

The header files need to be copied and paste to the assignment programming folder. In order for CodeBlocks to communicate with the CKIT, the port and the baud rate need to be set in the template file given. The hardware which can be seen in Figure 1 can be communicated by using the following statement.

Send2CKIT ("X=Y");

Where X and Y is defined in Table 1.

Table 1: CKIT communication

X	Y	Comment
SS1	'-' or value between 0 and 9	Set seven segment 1 (SS1) to the desired Y value.
SS2	'-' or value between 0 and 9	Set seven segment 2 (SS2) to the desired Y value.
SS3	'-' or value between 0 and 9	Set seven segment 3 (SS3) to the desired Y value.
SS4	'-' or value between 0 and 9	Set seven segment 4 (SS4) to the desired Y value.
SSC	None	Clear all seven segment. Individual seven segment cannot be clear individually.
BZ	Between 0 to 255	To turn off, set to 0

Example:

```
Send2CKIT ("SS1=5"); // Seven segment 1 will show the number 5
Sleep (2);           // Minimum delay before sending another instruction to CKIT
Send2CKIT ("SSC"); // Clear all seven segment
Sleep (2);
Send2CKIT ("BZ=50"); // Set the buzzer tone to 50
Sleep (2);
Send2CKIT ("BZ=0"); // Off the buzzer
```

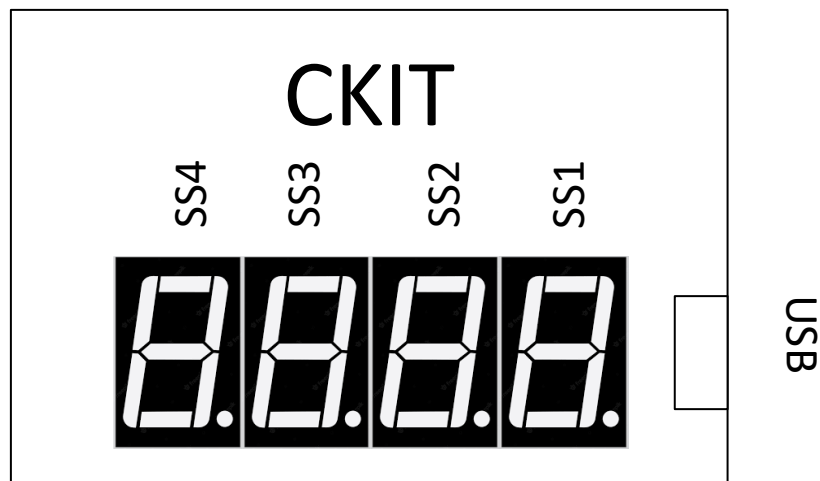


Figure 1: CKIT Hardware

Instruction

The student is required to do all Parts of the assignment by producing the program flowchart and the codes. The student needs to present to the lecturer.

Part A: Input and Output Statement [5 Marks]

Create a program to communicate with the CKIT so that it can function as follow:

1. The user key-in a number.
2. The program display the key-in number on the screen.
3. Buzzer on for one second.

Part B: Operation Statement & Selection [10 Marks]

Create a program that function as follow:

1. The program gets 2 numbers from the user.
2. The program will add the two numbers and output the answer to CKIT.

Part C: Repetitive and below [10 Marks]

Create a program that function as follow:

1. The program gets a number from the user.
2. The program will count up from zero till the user defined numbers.
3. The count up is displayed on the CKIT

Part D: Function and below [15 Marks]

Create a program by utilizing function for the following instruction.

1. The program will output two random numbers and any of the following math
 - 1: Addition
 - 2: Subtraction
 - 3: Multiplication
 - 4: Division
2. The program needs to get the answer from the user.
3. If the answer is correct, buzzer will on for 1 second.
4. If the answer is wrong, the buzzer will on for 1 second at a different value than instruction 3.
5. The program will output the correct answer at the CKIT.