

Adeel Akmal (231465420)
Muhammad Sameed Gilani (231488342)

FORMAN CHRISTIAN COLLEGE
A Chartered University
Embedded Systems CSCS306
LAB-01

② *[Signature]*
[Signature]
14-10-22

This lab is time constrained. It should be completed within prescribed time. Failure in doing so will result upto 50% drop in lab performance grade. Make sure to keep this graded and signed lab handout with you to be presented at a later stage if required.

You need to submit a report comprising of an introduction to the said lab, circuit diagram, image of your final circuit and code. All labs will be graded out of 100. Rubric for this lab is as follows:

Hardware properly wired and working	0%
Code	70%
Report	30%

Important Note: You MUST keep the graded copy of this hand out duly signed by the instructor with you. This is the only proof if at some time in future you need to contest for your grades in this lab.

Group Members:

Lab Task 1 [70 Marks]

In this lab we will write a basic code in Arduino IDE.

Requirement is as follows:

Open Arduino IDE and save it as lab1task1.ino

Get an 8 bit value from user on the serial terminal. Now display following information for the user on serial monitor:

=====LAB 01=====

Enter a 5-digit binary value

1 1 0 0 1

[25 marks]

Decimal Value of this binary number is: 25.00

[15 marks]

Complement of given binary number: 0 0 1 1 0

[10 marks]

Enter a bit position (starting from LS bit) to read: 2

[10 marks]

The binary digit at position 2 is: 0

[10 marks]

Make sure to follow the given boiler plate code:

```
void display(int arr[]);
void populateArray(int arr[]);
float getDecimalValue(int arr[]);
void getComplement(int arr[]);
int getBitPos();
int readBit(int);

int siz = 5;
int arr[] = {0,0,0,0,0};
int complArr[5];
void setup() {
    // put your setup code here, to run once:
    Serial.begin(9600);
    Serial.println("\t=====LAB 01=====");
    Serial.println();

    populateArray(arr);
    display(arr);
    float out = getDecimalValue(arr);
```

```

Serial.print("Decimal Value of this binary number is: ");
Serial.println(out);
Serial.print("Complement of given binary number: ");
getComplement(arr);
display(complArr);
Serial.println("Enter a bit position (starting from LS bit) to read: ");
int pos = getBitPos();

if(pos >=5)
{
    Serial.println("Invalid bit position");
}
else
{
    Serial.print("The binary digit at position ");
    Serial.print(pos);
    Serial.print(" is: ");
    int val = readBit(pos);
    Serial.println(val);
}
}

void loop() {
    // put your main code here, to run repeatedly:
    //Nothing goes here for this lab.
}

int readBit(int p)
{
}

int getBitPos()
{
}

void getComplement(int arr[5])
{
}

float getDecimalValue(int arr[5])
{
}

void populateArray(int arr[5])
{
}

void display(int arr[5])
{
}

```