**MAS WES : Rajan Verma**

**Student ID:A69028626**

**//Q1**  
#include <stdbool.h>

#include <stdint.h>

#include <stdio.h>

int main() {

// Declare pointers that will allow you to access the GPIO registers:

uint32\_t\* gpio\_config = (uint32\_t\*)0x40001000; // Output control reg

volatile uint32\_t\* gpio\_value = (uint32\_t\*)0x40001004; // Level register

// Set GPIO Pin 0 to output mode, and set the value of Pin 0 to high

\*gpio\_config |= (1 << 0); // Configure Pin 0 as output

\*gpio\_value |= (1 << 0); // Set Pin 0 to high

// Read the value of Pin 1, and print it

bool pin1 = (\*gpio\_value & (1 << 1)) != 0;

printf("Pin 1 is %s\n", pin1 ? "high" : "low");

return 0;

}

**//Q2 Helper Function**   
// Return whether the specified pin is currently configured as an output or not

bool is\_output(uint32\_t pin) {

// gpio\_config is the register at 0x40001000 controlling pin configuration

volatile uint32\_t\* gpio\_config = (uint32\_t\*)0x40001000;

// Check if the bit corresponding to 'pin' is set to 1 (configured as output)

return ((\*gpio\_config & (1 << pin)) != 0);

}

// Set the level of (only) the specified pin

void set\_level(uint32\_t pin, bool level) {

// gpio\_value is the register at 0x40001004 controlling pin levels

volatile uint32\_t\* gpio\_value = (uint32\_t\*)0x40001004;

if (level) {

// Set the bit corresponding to 'pin' to 1 without affecting other bits

\*gpio\_value |= (1 << pin);

} else {

// Clear the bit corresponding to 'pin' to 0 without affecting other bits

\*gpio\_value &= ~(1 << pin);

}

}

Q3 :

buffer begins at: 0x20004000

eth begins at: 0x20004008

ipv4 begins at: 0x20004016

*udp begins at: 0x2000402A //(previous address + 20 bytes size of ipv4 packet)*

*payload begins at: 0x20004032 //(previous address + 8 bytes size of ipv4 packet)*

Q4 :

The class is unique in terms of giving us report or Homework 2 which is like exploring the real world, business needs dictating how technology would be implemented. Its seems very close to real world, the technology and topics seems everyday use tech!