Part 1

int state; //the state of the button

unsigned long Time; //Time to debounce switch

int input;

enum Button

{

Idle,

Wait,

Low

}; //Glob var holding status of button

Button ButtonState;

void setup()

{

pinMode(13, INPUT);

pinMode(4, INPUT);

Button ButtonState = Idle;

Serial.begin(9600);

}

void loop()

{

state = ButtonNextState(digitalRead(4)); //Calls function continually

if (state)

{

Serial.println("Button has been pressed");

}

}

int ButtonNextState(int input) //function that is to be called in loop

{

switch (ButtonState)

{

case Idle: //State where nothing is happening

{

if (input == LOW) //If button is LOW

{

Time = millis(); //Record time of high to low transition

ButtonState = Wait; //Move to Wait

digitalWrite(13, HIGH); //Turns the LED on

}

break;

}//end Idle

case Wait: // When Button LOW; Wait for 5 millis

{

if (input == HIGH) //If button is HIGH

{

ButtonState = Idle;

}

else if (millis() - Time >= 5) //If 5 millis has passed

{

ButtonState = Low; //Setting button state to LOW

digitalWrite(13, LOW); //Turns LED off

return 1; //The button has been pressed

}

break;

}//end Wait

case Low: //Sets Button to LOW

{

if (input == HIGH)

{

ButtonState = Idle;

}

break;

}//end Low

}//end switch-case

return 0;

}//end ButtonNextState