Question 1

The TED talk given under the Pre-Lab materials, shows how Arduino is being used for interesting projects to capture data from the environment, process it, and use it carry out useful actions

What are three projects that use captured data as given in the TED talk? What data do they capture? What sensors do you think they could use to capture this data?

Project name	Data captured	Sensors to capture the data
Cat Feeder	Identity of each cat	RFID/NFC Reader
Enough Already	TV Signal Closed Caption Track	TV Signal Shield
Geiger Counter	Radiation Levels	Radiation Sensor Board

Question 2

Consider the given Task Objective. Think about how this simple system can be decomposed to 'Sense-Think-Act' as discussed in class (lecture).
  a) What is the 'sensing' requirement in this system, if any?
    Time is the only thing that I would think could be considered sensing

  b) What is the 'thinking' requirement in this system, if any?
    none

  c) What is the 'acting' requirement in this system, if any?
    Changing the state of the LED based on time

Question 3

Please refer to the provided 'Arduino Blink Activity Sheet' and follow the steps.

    a) In Arduino-speak, what is a "sketch"?

        A sketch is the program or code to be uploaded to the Arduino

    b) setup() and loop() are key Arduino constructs. These are required in every Arduino sketch. Which of the above two, runs once at the very beginning of your program and never again (unless you reset or upload new code)?

        Which of the above two, is used to continuously run code over and over again?

        Setup() runs at the beginning of the program

        Loop() runs continuously until the Arduino is turned off or in some circumstances until a specific condition is met (if it is a conditional loop instead of an infinite loop)

        i)

    c) What does **pinMode()** do?

        pinMode() is used for setting the mode of a specified pin, e.g. Input, Output, Pull-up

    d) What is a comment?

        A comment is a user readable explanation or note in a programs source code, they are generally used for explaining code functions or helpful comments particularly during development of an application

    e) What does the following line of code do?

```
delay(x);
```

        this line of code is used to delay the execution of the next line of code for x milliseconds, where x is the value you wish to delay the execution by.

    f) There is something you need to check before uploading your sketch. What is this?

        The first thing you should check before attempting to upload your sketch would be to ensure you use the verify feature to ensure you syntax is correct, secondly you should check that the Arduino IDE is connected to the Arduino Unit.

Question 4

How can you test the Blink program to make sure it is working as given in the Task Objective?
The easiest way to test the code is firstly to verify the code using the IDEs verify tool, then upload the program to the Arduino and watch the led to ensure it flashes as it should.

Question 5

Now that you have built and tested your Blink program, it is time to deliver it (hand it it over). Take a five second video of your Arduino board with the LED blinking (use your phone to record) and upload it to YouTube. Include the link here. Alternatively, if you are on campus, show your working project to your tutor in the lab and get it marked.

https://youtu.be/WelR8VU5mLw

Question 6

The Morse code is a method of transmitting text information as a series of on-off lights, or clicks.
a) *Create a new Arduino project named 'BlinkSOS'. Copy and paste your code from the Blink example to the newly created project. Modify the code in the new project, to send an SOS signal in Morse Code via turning the LED on and off.*
Upload the 'BlinkSOS.ino' file with this document to cloud Deakin.

b) *How did you test your code to make sure it is working correctly?*
The first stage to testing the code is to "verify" it using the IDE's verify tool, after that being a very simple code I just uploaded it the the Arduino and tested it.

c) *Take a video of your Arduino board running 'BlinkSOS' program and upload it to YouTube. Include the link here. Alternatively, if you are on campus, show your working project to your lecturer/tutor in the lab and get it marked.*

https://youtu.be/huLfiOG_Sfk