Exercise 14: Structures

Equipment

For this exercise you will need:

- 1 x Arduino Uno

You can use strcpy(out,"Hello") to easily set the value of char-arrays.

Reading

Chapter 10

Questions & Exercises

14a: What is a member?
14b: Describe the difference between the four statements below

1	2	3	4
`struct.member`	`*(struct).member`	`*struct.member`	and `struct->member`

When should `struct` be a pointer? When should `member` be a pointer? **14c:** Make a structure called Animal, include at least 5 members with 3 different data types. (Family, weight, alive, place of capture etc.) **14d:** Declare two different animals of your choosing. Set all members of the two animals.

```
struct Animal hummingbird;  //Declare new Animal struct
hummingbird.weight = 50;    //Set member weight of Animal struct
```

14e: Write a function that prints the information on an Animal.

```
void printAnimal (struct Animal a) {
    . . .
}
```

14f: Write a function that swaps one member of two Animals (ID, weight etc.). Remember that you must use pointers if you want to change a member of a structure passed as an argument to a function. When dealing with pointers to structure we use `a->ID` instead of `a.ID`. This is simply a syntax trick, you could also write `(*a).ID`

```
void swapWeight (struct Animal *a, struct Animal *b) {
    printf("Animal␣%d␣is␣a␣%s", a->ID, a->species);
    . . .
}
```

Hint

You can define and initialise a struct like this

```
struct ABC {
  int a;
  double b;
  boolean c;
};
struct ABC myStruct;
```