SCAN ME

1. Javier has created an array of Roald Dahl books called `books`

| Matilda | Fantastic Mr Fox | The BFG | Esio Trot | The Twits |

a. Match the line of code with the description

```
print(books[0])
Books.append("The Minpins")
Print(books)
books[2] = "Boy"
books.append("The Minpins")
print(book[0])
books[2] = Boy
```

```
Changes "The BFG" to "Boy"

Adds "The Minpins" to the
end of the array"

Outputs the word "Matilda"
```

b. What would be output by this line of code `print(len(books))`

5

c. Explain and justify which searching algorithm would be best used when looking for items within the array `books`

Use one of these connectives in your answer - Because, Therefore, For Example, So That

Linear search, because the list is not sorted

2. Look at the following set of data

a. complete the first pass of a bubble sort to store the data alphabetically

M	F	T	E	B
F	M			
	M	T		
		E	T	
F	M	E	B	T

b. What is the maximum number of passes that would be needed to sort the data

4

3. Show the stages of a merge sort

| 6 | 2 | 7 | 4 |

6 2   7 4

6   2   7   4

2 6   4 7

2 4 6 7

4. The formula for calculating file size in bit is:

Sample Rate x Sample Resolution x Number of Seconds

Calculate the file size of a sound clips that has a rate of 8, a resolution of 4 and is played for 1 minute. Give your answer in Bytes.
Show all your working out.

8*4*60 = 32*60 = 1920 bits

1920 bits = 240 Bytes

5. Covert the following:

   a. 011110100 from binary into denary

   64 32 16 8 2

   64 + 16 = 80   8 + 2 = 10

   80 + 10 + 32 = 90 + 32 = 122

   b. 11011101 from binary into hexadecimal

   1101   1101

   8 + 4 + 1 = 13   0xDD

   13 = D

   c. D8 from hexadecimal into binary

   D = 1101   8 = 1000

         11011000

6. A cinema uses the following criteria to decide if a customer is allowed to see a film that has a 15 rating. Customers have to be 15 years of age or older to see the film. They also need to either have a ticket or have the money to buy a ticket.

   Complete the following algorithm to output whether the customer is allowed to see the film or not

```
A = input("Is the customer 15 or over?")
B = input("Does the customer have a ticket?")
C = input("Does the customer have money to buy a ticket?")
```

if A == "Yes" and (B == "Yes" or C == "Yes"):
        print("Allowed")