

Question 3a

The file format is structured as follows:

- The first 8 bytes store the number of customers.
- The next 400,000 bytes store the positions of each customer.
- Following this, the customer data is stored sequentially.

The structure is detailed below:

8 bytes [Customer count]

[Position of the first customer]

[Position of the second customer]

400000 bytes ...

[Position of the Nth customer]

[Data of the first customer]

[Data of the second customer]

...

[Data of the Nth customer]

With this format, we can process an array of positions, allowing for random access using `seekg()`. This enables the following operations:

- Search for a customer based on their CustomerID.
- Read all customers and their orders from the file into a data structure in memory.
- Append a new customer at the end of the file and write their position to the appropriate location within the first 400,000 bytes.