> Each student comes prepared with a customer problem  
Speed and Security   
> During the lab, group agrees on a problem to work on  
> Write all function prototypes and block comments  
> Produce a structure chart  
> Produce the project report outline with section headings and fill in the scope

CHECKPOINT 1:

> Submit the report outline with the scope (other sections could be incomplete)  
> Submit one/more .c/.h files with function prototypes, block comments, and the name of the author of each function

10 pages + 1 cover page + 1 table of contents + appendice

**Fundamentals Of C Programming Report**

Written By:

**Overview:**

1. **Customer Problems…………………………………………………………………..1**
   1. **Richard’s Problem…………………..…………………..……………….………………**
   2. **Stephen’s Problem…………………..…………………..…………………………………**
   3. **Sebastian’s Problem…………………..…………………..…………….………………**
   4. **Jiajian Liang’s Problem…………………..…………………..………………………………**
   5. **The Selected Problem…………………..…………………..…………………..……….**
2. **Scope…………………..…………………..…………………..……….…………………..……………**
3. **Design**
   1. **Maps**
   2. **Linking**
   3. **Encryption**

1. **Functionality**

1. **Conclusion**
2. **Appendix**
3. **Customer Problems**

This section covers each customer problem suggested by each member of our group.

* 1. **Richard’s Customer Problem**

A customer requires a solution which allows for:

* Fast Access to data
* Secure Access to data
* More convenient data searching
* Compression of input into fixed output
* 1. **Stephen’s Customer Problem**

A Customer requires a solution which allows for:

* Encryption of text and file data
* decrypted text and file data
* compression of text and image data
* decompression of text and image data
* The ability to save history of data encrypted/decrypted or compressed/decompressed. So that the user can remember what they did.
* The ability to change the encryption key whenever they want.
* (Optional)An encryption profile where the user logs into their account and their encryption information is saved. This profile is restricted from other users. A login is needed to access encryption profiles.
* user friendly ui.
* Command-line runtime commands.

**1.3 Sebastian’s Customer Problem   
  
1.4 Jiajian Liang’s Customer Problem**

A customer requires a solution which allows for:

* User system for individual use purposes
* Secure to user privacy
* Encryption for any type of document
* Log system for user’s actions
* Erase all user data including both source and encryption files if user delete their account
* Simple but beautiful UI design
* Encryption and decryption for data only with correct password without user system

**1.5 The Selected Problem**

**2.0 Scope**

The scope of this project is to solve a real world problem through manipulating data by encryption/ decryption and compression. The project will involve a hash map to ensure secure storing and fast access to user data inputs. The algorithm used to hash data will be complicated enough to ensure satisfactory encryption and it will also be a unique way to store data. This process will be reversible, meaning that if the data is no longer needed to be stored as a hash it can be decrypted into its original format without any loss of information. This project will also allow the option to compress files and decompress files (image and text). Allowing the user to save space. This proof of concept will only be designed to generate and run a limited amount of data but will also be designed with scalability in mind allowing for the solution to be scaled up towards larger applications.

This application will also be operated with possibly a text based system to allow it be easily debugged and also so that developers can get familiar with a visual/text representation of the Data Structure Works.

1. **Design**
   1. **Maps**
   2. **Linking**
   3. **Encryption**

1. **Functionality**

1. **Conclusion**
2. **Appendix**