**Assignment I (C++ Function basic)**

1. You are requested to develop a contact book application. The program keeps the following information about a contact: Full name, telephone number and email. It allows adding, editing, removing, searching and displaying contact info. The program may also display all contacts details sorted by name. Assume array structure to hold the data.

Break down the problem at least in to modules (functions) and draw the structure chart

The problem is break down as shown below:

main

Views

Edits

welcome

Menu

EditContact

RemoveContact

viewSubMenu

editSubMenu

AddContact

Edit (we call getcontact info

GetContactInfo

Search

Remove

GetContactInfo

Search

GetContactInfo

Add

SearchByPhone

SearchByName

ViewAll

ViewBySearch

Display

Search

Sort

Display

GetContactInfo

Sort

SortByPhone

SortByName

**Data Structure**

Two dimensional character array to stores contact names: name[1000][80]

Two Dimensional character array to store phone: phone[1000][10]

Two Dimensional character array to store email:: email[1000][80]

**Interfaces**

int main() the main function

void Welcome() welcome function

int Menu() the main menu which contains Edit, view , exit menu items

void edits(name[][80], char phone[][10], char email[][80], int &n)

void views(name[][80], char phone[][10], char email[][80], int n)

int EditSubMenu() edit sub menu which contains add, edit, remove, back to main menu items

int ViewSubMenu() view sub menu which contains view by search and view all items

void AddContact(name[][80], char phone[][10], char email[][80], int &n)

void GetContactInfo(char prompt[], char input[]) accepts name, email or phone

void Add(char name[][80], char phone[][10], char email[][80], int & n , const char newName[], const char newPhone, const char newEmail[])

void Sort(char name[][80], char phone[][10], char email[][80], int n, int byWhat) byWhat=0 means by “name” 1 means by ‘phone’

void SorByName(char name[][80], char phone[][10], char email[][80], int n)

void SorByPhone(char name[][80], char phone[][10], char email[][80], int n)

void EditContact(char name[][80], char phone[][10], char email[][80], int n)

void Search(const char name[][80], const char phone[][10], int n, int byWhat, char seachCriteria[], int searchResultIdx[], int & noResults) searchResultIdx-index of found contacts

void SearchByName(const char name[][80], ,int n, char seachCriteria[], int searchResultIdx[], int & noResults)

void SearchByPhone(const char phone[][10], int n, char seachCriteria[],int searchResultIdx[], int & noResults)

void Edit(char name[][80], char phone[][10], char email[][80],int contactToEditIdx)

void RemoveContact(char name[][80], char phone[][10], char email[][80], int & n)

int void Renove(char name[][80], char phone[][10], char email[][80], int & n, int contactToRemoveIdx)

void viewAll(char name[][80], char phone[][10], char email[][80], int n)

void viewBySearch(char name[][80], char phone[][10], char email[][80], int n)

void Display(const char name[][80], const char phone[][10], const char email[][80], int n, const int resultToDisplay[], int noResult)

void Display(const char name[][80], const char phone[][10], const char email[][80], int n)

**Question**

Implement the complete program.