Useful programs to keep in mind

Bubble Sort

```
for (int i = 0; i < size; i++) {
for (int j = 0; j < size - 1; j++) {
if (arr[j] > arr[j + 1]) {
temp = arr[j];
arr[j] = arr[j + 1];
arr[j + 1] = temp;
}
}
}
for (int i = 0; i < size;i++) {
cout << arr[i] << endl;
}
```

Searching an element in an array

```
int searchElemnt,arr[10];
bool flag = false;
cout << "Enter the element you want to search" << endl;
cin >> searchElemnt;
for (int i = 0; i < 10; i++) {
if (arr[i] == searchElemnt) {
cout << "Element found at index " << i << endl;
flag = true;
}
}
if (flag == false) {
cout << "Element doesn't exist" << endl;
}
```

Updating an element in an array

```
int updateElement, newElement, arr[10];
bool flag = false;
cout << "Enter the element you want to update" << endl;
cin >> updateElement;
for (int i = 0; i < 10; i++) {
if (arr[i] == updateElement) {
cout << "Element found, Enter new element" << endl;
cin >> newElement;
arr[i] = newElement;
flag = true;
}
}
if (flag == true) {
cout << "Element was updated succesfully" << endl;
}
else if (flag == false) {
cout << "Element doesn't exist" << endl;
}
```

Deleting an element from an array

```
int delElement, arr[10];
bool flag = false;
cout << "Enter the element you want to delete" << endl;
cin >> delElement;
for (int i = 0;i<10;i++){
if (arr[i] == delElement) {
flag = true;
for (int j = i; j < 10 - 1; j++) {

arr[j] = arr[j + 1];
arr[j + 1] = NULL;
}

}
}
if (flag == true) {
cout << "Element was deleted successfuly" << endl;
}
else if (flag == false) {
cout << "Element not found" << endl;
}
```

Search for an element in a file and displaing its line no:

```
string fileSearch,data,line;
int lineNo = 0;
ifstream filein;
ofstream fileout;

filein.open("data.txt");

if (filein.is_open()) {
cout << "Enter the element you want to search for" << endl;
cin >> fileSearch;

while (getline(filein, data)) {
if (data.find(fileSearch) != string::npos) {
cout << "Element found at line no : " << lineNo;
}
lineNo++;
}
}
else {
cout << "unable to open file" << endl;
}
```

Searching for an element in a file and displaying its next lines

```
string fileSearch,data,line;
int lineNo = 0,noOfLines = 2;
ifstream filein;
ofstream fileout;

filein.open("data.txt");

if (filein.is_open()) {
cout << "Enter the element you want to search for" << endl;
cin >> fileSearch;

while (getline(filein, data)) {
if (data.find(fileSearch) != string::npos) {
while (getline(filein, line)) {
for (int i = 0; i < noOfLines; i++) {
cout << line;
}
}
}
lineNo++;
}
}
else {
cout << "unable to open file" << endl;
}
```

A menu driven program for updating and deleting data from file using structures

```
#include <iOStream>
#include <string>
#include <fstream>
using namespace std;

int main() {
string searchName, newName, delName;
ifstream filein;
ofstream fileout;
struct student {
string name;
int age, ID;
}obj[10];
int i = 0;
char choice, loopChoice;

do {
cout << "Press 1 to enter data" << endl
<< "Press 2 to update data" << endl
<< "Press 3 to delete data" << endl;

cin >> choice;

switch (choice) {
case '1': {


cout << "Enter name" << endl;
cin >> obj[i].name;
cout << "Enter age " << endl;
cin >> obj[i].age;
cout << "Enter ID" << endl;
```

```
cin >> obj[i].ID;


fileout.open("Student data.txt", ios::app);
if (fileout.is_open()) {
fileout << "Name of student : " << obj[i].name
<< endl << "Age of student : " << obj[i].age
<< endl << "ID of student : " << obj[i].ID << endl;
fileout.close();
i = i + 1;
}
else {
cout << "Can't open file" << endl;
}
break;
}
case '2':
{

cout << "Enter the name of the stuedent" << endl;
cin >> searchName;
bool  flag = false;
for (int j = 0; j < i; j++) {
if (obj[j].name == searchName) {
flag = true;
cout << "record found" << endl
<< "Enter new name" << endl;
cin >> newName;
obj[j].name = newName;
}
}
if (flag == false) {
cout << "record not found" << endl;
}
else if (flag = true) {
remove("Student data.txt");
for (int j = 0; j < i; j++) {

fileout.open("Student data.txt", ios::app);
fileout << "Name of student : " << obj[j].name
<< endl << "Age of student : " << obj[j].age
<< endl << "ID of student : " << obj[j].ID << endl;
fileout.close();
}
}
break;
}
case '3':
{

cout << "Enter the name you want to delete" << endl;
cin >> delName;
for (int j = 0; j < i; j++) {
if (obj[j].name == delName) {


obj[j].name = " ";
obj[j].age = 0;
obj[j].ID = 0;
for (int k = j; k < i; k++) {
obj[k].name = obj[k + 1].name;
obj[k].age = obj[k + 1].age;
obj[k].ID = obj[k + 1].ID;
```

```
}
}

}
remove("Student data.txt");
for (int j = 0; j < i; j++) {

fileout.open("Student data.txt", ios::app);
fileout << "Name of student : " << obj[j].name
<< endl << "Age of student : " << obj[j].age
<< endl << "ID of student : " << obj[j].ID << endl;
fileout.close();
}
break;
}
}


cout << "Press y if you want to continue" << endl;
cin >> loopChoice;
} while (loopChoice == 'y');

return 0;
}
```