

1- Create a program that opens a file for writing and prints a message if the file is successfully opened.

إنشاء برنامج يفتح ملفاً للكتابة ويطبع رسالة إذا تم فتح الملف بنجاح.

Output

```
File is open for writing.
```

Solution

```
// www.gammal.tech
#include<iostream>
#include<fstream>
using namespace std;

int main() {
    ofstream myFile("output.txt");
    if(myFile.is_open()) {
        cout << "File is open for writing.\n";
        myFile << "Hello, File!\n";
        myFile.close();
    } else {
        cout << "Error: cannot open file\n";
    }

    return 0;
}

return 0;
}
```

2- Modify the previous program to read and print the content from the file.

قم بتعديل البرنامج السابق لقراءة وطباعة المحتوى من الملف.

Output

```
File is open for reading.  
Hello, File!
```

Solution

```
// www.gammal.tech  
#include<iostream>  
#include<fstream>  
#include<string>  
using namespace std;  
  
int main() {  
    ifstream myFile("output.txt");  
    if(myFile.is_open()) {  
        cout << "File is open for reading.\n";  
        string content;  
        while(getline(myFile, content)) {  
            cout << content << endl;  
        }  
        myFile.close();  
    } else {  
        cout << "Error: cannot open file\n";  
    }  
  
    return 0;  
}
```

3- Create a program that adds a question and answer to a file.

إنشاء برنامج يضيف سؤالاً وإجابة إلى ملف.

Output

```
File is open for writing.
```

Solution

```
// www.gammal.tech
#include<iostream>
#include<fstream>
using namespace std;

int main() {
    ofstream chatFile("chatbot_data.txt", ios::app);
    if(chatFile.is_open()) {
        cout << "File is open for writing.\n";
        chatFile << "What is your name?\n";
        chatFile << "My name is Chatbot.\n";
        chatFile.close();
    } else {
        cout << "Error: cannot open file\n";
    }

    return 0;
}
```

4- Modify the previous program to read and display all questions and answers from the file.

تعديل البرنامج السابق لقراءة وعرض كافة الأسئلة والأجوبة من الملف.

Output

```
File is open for reading.
Q: What is your name?
A: My name is Chatbot.
```

Solution

```
// www.gammal.tech

#include<iostream>
#include<fstream>
#include<string>
using namespace std;

int main() {
    ifstream chatFile("chatbot_data.txt");
    if(chatFile.is_open()) {
        cout << "File is open for reading.\n";
        string question, answer;
        while(getline(chatFile, question) && getline(chatFile, answer)) {
            cout << "Q: " << question << "\nA: " << answer << endl;
        }
        chatFile.close();
    } else {
        cout << "Error: cannot open file\n";
    }

    return 0;
}
```

5- Create a program that lets the user input a question and get the corresponding answer from the file.

قم بإنشاء برنامج يتيح للمستخدم إدخال سؤال والحصول على الإجابة المقابلة من الملف.

Input & Output

```
File is open for reading.
Ask me a question: What is your name?
Answer: My name is Chatbot.
```

Solution

```
// www.gammal.tech

#include<iostream>
#include<fstream>
#include<string>
#include<map>
using namespace std;

int main() {
    ifstream chatFile("chatbot_data.txt");
    if(chatFile.is_open()) {
        cout << "File is open for reading.\n";
        map<string, string> chatData;
        string question, answer;
        while(getline(chatFile, question) && getline(chatFile, answer)) {
            chatData[question] = answer;
        }
        chatFile.close();

        string userQuestion;
        cout << "Ask me a question: ";
        getline(cin, userQuestion);

        if(chatData.find(userQuestion) != chatData.end()) {
            cout << "Answer: " << chatData[userQuestion] << endl;
        } else {
            cout << "I don't know the answer to that question.\n";
        }
    } else {
        cout << "Error: cannot open file\n";
    }

    return 0;
}
```

6- Modify the previous program to allow the user to add new questions and answers to the file.

تعديل البرنامج السابق ليُسمح للمستخدم بإضافة أسئلة وإجابات جديدة للملف.

Input & Output

```
File is open for writing.
Add a new question: How do you do?
Add the answer: I am doing well
New question and answer added to the file.
```

Output

chatbot_data.txt

```
1 What is your name?
2 My name is Chatbot.
3 How do you do?
4 I am doing well
```

7- Create a program that clears all the existing questions and answers from the file.

قم بإنشاء برنامج يقوم بمسح كافة الأسئلة والأجوبة الموجودة من الملف.

Output

```
File is open for writing.
All data cleared from the file.
```

Solution

```
// www.gammal.tech

#include<iostream>
#include<fstream>
using namespace std;

int main() {
    ofstream chatFile("chatbot_data.txt");
    if(chatFile.is_open()) {
        cout << "File is open for writing.\n";
        chatFile.close();
        cout << "All data cleared from the file.\n";
    } else {
        cout << "Error: cannot open file\n";
    }

    return 0;
}
```

8- Modify the previous program to confirm before clearing all data from the file.

قم بتعديل البرنامج السابق للتأكد قبل مسح كافة البيانات من الملف.

Input

```
Are you sure you want to clear all data from the file? (y/n): y
```

Output

```
File is open for writing.  
All data cleared from the file.
```

Solution

```
// www.gammal.tech

#include<iostream>
#include<fstream>
using namespace std;

int main() {
    char confirmation;
    cout << "Are you sure you want to clear all data from the file? (y/n): ";
    cin >> confirmation;

    if (confirmation == 'y' || confirmation == 'Y') {
        ofstream chatFile("chatbot_data.txt");
        if(chatFile.is_open()) {
            cout << "File is open for writing.\n";
            chatFile.close();
            cout << "All data cleared from the file.\n";
        } else {
            cout << "Error: cannot open file\n";
        }
    } else {
        cout << "Operation cancelled.\n";
    }

    return 0;
}
```

9- Create a program that counts and displays the number of questions and answers in the file.

قم بإنشاء برنامج يقوم بإحصاء وعرض عدد الأسئلة والأجوبة الموجودة في الملف.

Input

```
≡ chatbot_data.txt  
  
1 How do you do?  
2 I am doing well.
```

Output

```
File is open for reading.  
Number of questions and answers in the file: 1
```

Solution

```
// www.gammal.tech  
  
#include<iostream>  
#include<fstream>  
#include<string>  
using namespace std;  
  
int main() {  
    ifstream chatFile("chatbot_data.txt");  
    if(chatFile.is_open()) {  
        cout << "File is open for reading.\n";  
        int count = 0;  
        string line;  
  
        while (getline(chatFile, line)) {  
            count++;  
        }  
  
        chatFile.close();  
        cout << "Number of questions and answers in the file: " << count / 2 << endl;  
    } else {  
        cout << "Error: cannot open file\n";  
    }  
  
    return 0;  
}
```

10- Modify the previous program to display the questions and answers along with their counts.

تعديل البرنامج السابق لعرض الأسئلة والأجوبة وأعدادها.

Input

chatbot_data.txt

```
1  What is your name?  
2  My name is Chatbot.
```

Output

```
File is open for reading.  
Q: What is your name?  
A: My name is Chatbot.  
Number of questions and answers in the file: 1
```

Solution

```
// www.gammal.tech  
  
#include<iostream>  
#include<fstream>  
#include<string>  
using namespace std;  
  
int main() {  
    ifstream chatFile("chatbot_data.txt");  
    if(chatFile.is_open()) {  
        cout << "File is open for reading.\n";  
        int count = 0;  
        string question, answer;  
  
        while (getline(chatFile, question) && getline(chatFile, answer)) {  
            count++;  
            cout << "Q: " << question << "\nA: " << answer << endl;  
        }  
  
        chatFile.close();  
        cout << "Number of questions and answers in the file: " << count << endl;  
    } else {  
        cout << "Error: cannot open file\n";  
    }  
  
    return 0;  
}
```