CPP 程式設計題

命題者：LLA

題目名稱(中文/英文)：Football Game System

主要測試觀念：Class, Function

Basics	Functions
■ C++ BASICS	□ SEPARATE COMPILATION AND NAMESPACES
■ FLOW OF CONTROL	□ STREAMS AND FILE I/O
■ FUNCTION BASICS	□ RECURSION
□ PARAMETERS AND OVERLOADING	□ INHERITANCE
■ ARRAYS	□ POLYMORPHISM AND VIRTUAL FUNCTIONS
■ STRUCTURES AND CLASSES	□ TEMPLATES
■ CONSTRUCTORS AND OTHER TOOLS	□ LINKED DATA STRUCTURES
□ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES	□ EXCEPTION HANDLING
□ STRINGS	□ STANDARD TEMPLATE LIBRARY
□ POINTERS AND DYNAMIC ARRAYS	□ PATTERNS AND UML

題目說明：

Please write a football video game system. The system will take SettingPlayer.txt including all player information as input, and the
system should read it in and analyze each line to create all corresponding players where each football player has PlayerID and two
abilities: “Speed” and “Power”. The system can create a football player with PlayerInformation in the format of a string . The following describes the details.
a. The player information is a string composed of PlayerID, Name, Speed and Power in serialized form.
Example: If the string is "05Chan5050" means PlayerID=5, Name=Chan, Speed=50, Power=50.
b. “Name” is a string of connected characters, whose length is 10 > length(name) > 2. “Speed” and “Power” are two digits to specify
a value from 10 to 99.
c. The PlayerID is within the value from 01,02,03 ... to 10.
d. The shooting rate is defined by (Speed*0.5+Power*0.8) %, and set it to 100% if larger than 100%=
e. The ComparePlayer(string Player1 , string Player2) function compares two players’ Shooting rate and then prints the better one,
such as “ Player1 is the better player”. If two players have same Shooting rate, print “The two players have the same Shooting
rate”
f. The Listplayer() function can list the all player by their Player ID from low to high.
g. If ComparePlayer(string Player1 , string Player2) calls the player who does not exist in the file, output "The player name Player1
does not exist" or "The player name Player1 and Player2 do not exist"
h. *If PlayerID in the SettingPlayer.txt repeats, the character and the abilities should be updated.
i. *The Name in the SettingPlayer.txt would not be repeated, so don't worry about that.
j. *If a PlayerID is not in the SettingPlayer.txt , PlayerInformation(ID) would print “The PlayerID ID has no character”

Please define a class of FootballPlayer with the following functions:
public:
void SetFileName(string fileName); // Read the file would not output anything
void PlayerInformation(int ID); // Output PlayerID, Name and Shooting rate
void ComparePlayer(string Player1 , string Player2); //Output who is the better player or they have the same Shooting rate
void ListPlayer(); // List all the player ID, player name and Shooting rate

Note：
Please do not change the function in main(). To test your program, we would use another file "SettingPlayer.txt". So make sure all the
functions above can be executed and output correctly .
There is no space in the file "SettingPlayer.txt".
Each function output in main() function correspond to all Sample output.

輸入說明：

No input. However, we will replace your main.cpp with ours to test your program.

輸出說明：

All output messages are handled in main().

IO 範例：

Sample Input	Sample Output
main.cpp	The PlayerID 3 is Bruce and Shooting rate:70% The PlayerID 4 is Zod and Shooting rate:100% The PlayerID 5 is Diana and Shooting rate:93% The PlayerID 6 has no character The two players have the same Shooting rate Clark is the better player The player name Fury and Stephen do not exist The player name Barry does not exist The player name Tony does not exist The player name Stephen and Steve do not exist The player name Vision and Steve do not exist All Player: ID:01 Name: Arthur Shooting rate:16.4% ID:03 Name: Bruce Shooting rate:70% ID:04 Name: Zod Shooting rate:100% ID:05 Name: Diana Shooting rate:93% ID:08 Name: Clark Shooting rate:100%

附屬資料：

☑解答程式：

☑測試資料：

☐易，僅需用到基礎程式設計語法與結構

■中，需用到多項程式設計語法與結構

☐難，需用到多項程式結構或較為複雜之資料型態或結構

解題時間：40 分鐘

其他註記：