How this assignment will be assessed:

Name: Sirisha Penmetsa ID: 1804420

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Element** | **Description** | **Mark** | **Your mark** |
| 1 | Program structure | This will look at the way you designed your program, where did you define your variables, how you are using them, how did you place your functions and the way you are calling them. | 20 |  |
| 2 | Function design | This will assess your function design, what kind of parameters you are using/passing, and how did you design the returning values if needed.  And how did you document each function. | 25 |  |
| 3 | Implementation | How the solution is implemented, how efficient is your solution. | 30 |  |
| 4 | Testing | How did you test your program functionality and having a certain testing code for each individual function? | 10 |  |
| 5 | Input/ output | How do you perform the data input and how do you present your output. | 10 |  |
| 6 | Extras | This represents the extra controls you are adding to have a flexible access and control on the program operations and input/output. | 5 |  |
|  |  | **Total mark** | **100%** |  |

**File 1 : psp1AssignmentMain.cpp**

#include "pch.h"

#include <iostream>

#include <string>

#include "psp2AssignmentHeader.h"

#include "psp2AssignmentExtraHeader.h"

using namespace std;

int main()

{

int day, hour, term;

string subject, lecturer, roomNumber;

char option;

do {

cout << " Enter the day (0 for mon, 1 for tue, 2 for wed 3 for thrus 4 for fri )";

cin >> day ;

cout << " Enter the hour (0 for(9:00 AM), till 8 for (5:00PM) )";

cin >> hour;

cout << " Enter the subject : " ;

cin >> subject;

cout << "Enter the lecturer : ";

cin >> lecturer;

cout << " Enter the room Number : ";

cin >> roomNumber;

insertTimeTable(day, hour, subject, lecturer, roomNumber);

cout << " DO you Want to contuniue with next cell (Y for (yes) N for (no))";

cin >> option;

} while (option == 'Y');

showEntireTimetable();

clearTimetable();

cout << "After clean the table";

showEntireTimetable();

do {

cout << " Enter the term(0 for winter, 1 for spring, 2 for summer, and 3 for autumn)";

cin >> term;

cout << " Enter the day (0 for mon, 1 for tue, 2 for wed 3 for thrus 4 for fri )";

cin >> day;

cout << " Enter the hour (0 for(9:00 AM), till 8 for (5:00PM) )";

cin >> hour;

cout << " Enter the subject : ";

cin >> subject;

cout << "Enter the lecturer : ";

cin >> lecturer;

cout << " Enter the room Number : ";

cin >> roomNumber;

insertTimeTableTerm(term, day, hour, subject, lecturer, roomNumber);

cout << " DO you Want to contuniue with next cell (Y for (yes) N for (no))";

cin >> option;

} while (option == 'Y');

showEntireTimetableTerm();

cout << "After clean the table";

clearTimetableTerm();

cout << " Entire Time Table For Term ";

showEntireTimetableTerm();

cout << " Show Free Hours for Term ";

showFreeHoursTerm();

}

**File 2 : psp2AssignmentHeader.h**

**using namespace std;**

**void clearTimetable();**

**void insertTimeTable(int, int, string, string, string);**

**void showTimeTable(int, int);**

**void showEntireTimetable();**

**void showFreeHours();**

**File 3 psp2AssignmentSource.cpp**

**#include "pch.h"**

**#include <iostream>**

**#include <string>**

**#include "psp2AssignmentHeader.h"**

**using namespace std;**

**struct TimeTableCell**

**{**

**string subject;**

**string lecturer;**

**string roomNumber;**

**// flag to represent if a cell is free**

**bool isFree = true;**

**};**

**TimeTableCell timeTable[5][9];**

**//--------------------------------------------------------**

**// Function name: clearTimetableTerm**

**// clears the all time table form all terms.**

**//--------------------------------------------------------**

**void clearTimetable() {**

**for (int i = 0; i <= 4; i++) {**

**for (int j = 0; j <= 8; j++) {**

**timeTable[i][j].lecturer = "";**

**timeTable[i][j].roomNumber = "";**

**timeTable[i][j].subject = "";**

**timeTable[i][j].isFree = true;**

**}**

**}**

**}**

**//--------------------------------------------------------**

**// Function name: insertTimeTable**

**// input parameters**

**// @parm2: day**

**// @parm3: hour**

**// @parm4: subject**

**// @parm5: lecturer**

**// @parm6: roomNumber**

**//--------------------------------------------------------**

**void insertTimeTable(int day, int hour, string subject, string lecturer, string roomNumber) {**

**timeTable[day][hour].lecturer = lecturer;**

**timeTable[day][hour].roomNumber = roomNumber;**

**timeTable[day][hour].subject = subject;**

**timeTable[day][hour].isFree = false;**

**}**

**//--------------------------------------------------------**

**// Function name:showTimeTable**

**// input parameters**

**// @parm2: day**

**// @parm2: hour**

**//--------------------------------------------------------**

**void showTimeTable(int day, int hour) {**

**cout << hour + 9 << ", " << timeTable[day][hour].subject << ", " << timeTable[day][hour].lecturer << ", " << timeTable[day][hour].roomNumber;**

**}**

**//--------------------------------------------------------**

**// Function name:showEntireTimetable**

**//--------------------------------------------------------**

**void showEntireTimetable() {**

**string day;**

**for (int i = 0; i <= 4; i++) {**

**cout << "-----------------" << endl;**

**if (i == 0) {**

**day = "monday";**

**}**

**else if (i == 1) {**

**day = "tuesday";**

**}**

**else if (i == 2) {**

**day = "wednesday";**

**}**

**else if (i == 3) {**

**day = "thrusday";**

**}**

**else if (i == 4) {**

**day = "friday";**

**}**

**cout << day << endl;**

**for (int j = 0; j <= 8; j++) {**

**showTimeTable(i, j);**

**cout << endl;**

**}**

**}**

**}**

**//--------------------------------------------------------**

**// Function name: showfreeHoursTerms**

**//--------------------------------------------------------**

**void showFreeHours() {**

**string day;**

**for (int i = 0; i <= 4; i++) {**

**for (int j = 0; j <= 8; j++) {**

**cout << "-----------------" << endl;**

**if (timeTable[i][j].isFree == true) {**

**if (i == 0) {**

**day = "monday";**

**}**

**else if (i == 1) {**

**day = "tuesday";**

**}**

**else if (i == 2) {**

**day = "wednesday";**

**}**

**else if (i == 3) {**

**day = "thrusday";**

**}**

**else if (i == 4) {**

**day = "friday";**

**}**

**cout << j + 9 << " hour of " << day << " is free" ;**

**}**

**}**

**}**

**}**

**FILE 4 : psp2AssignmentExtraHeader.h**

**using namespace std;**

**#include <string>;**

**void clearTimetableTerm();**

**void insertTimeTableTerm(int, int, int, string, string, string);**

**void showTimeTableTerm(int, int, int);**

**void showEntireTimetableTerm();**

**void showFreeHoursTerm();**

**FILE 5: psp2AssignmentExtraSource.cpp**

**#include "pch.h"**

**#include <iostream>**

**#include <string>**

**#include "psp2AssignmentExtraHeader.h"**

**using namespace std;**

**struct TimeTableCell**

**{**

**string subject;**

**string lecturer;**

**string roomNumber;**

**// flag to represent if a cell is free**

**bool isFree = true;**

**};**

**TimeTableCell timeTable[4][5][9];**

**//--------------------------------------------------------**

**// Function name: clearTimetableTerm**

**// clears the all time table form all terms.**

**//--------------------------------------------------------**

**void clearTimetableTerm() {**

**for (int i = 0; i <= 3; i++) {**

**for (int j = 0; j <= 4; j++) {**

**for (int k = 0; k <= 8; k++) {**

**timeTable[i][j][k].lecturer = "";**

**timeTable[i][j][k].roomNumber = "";**

**timeTable[i][j][k].subject = "";**

**timeTable[i][j][k].isFree = true;**

**}**

**}**

**}**

**}**

**//--------------------------------------------------------**

**// Function name: insertTimeTableTerm**

**// input parameters**

**// @parm1: term**

**// @parm2: day**

**// @parm3: hour**

**// @parm4: subject**

**// @parm5: lecturer**

**// @parm6: roomNumber**

**//--------------------------------------------------------**

**void insertTimeTableTerm(int term, int day, int hour, string subject, string lecturer, string roomNumber) {**

**timeTable[term][day][hour].lecturer = lecturer;**

**timeTable[term][day][hour].roomNumber = roomNumber;**

**timeTable[term][day][hour].subject = subject;**

**timeTable[term][day][hour].isFree = false;**

**}**

**//--------------------------------------------------------**

**// Function name:showTimeTableTerm**

**// input parameters**

**// @parm1: term**

**// @parm2: day**

**// @parm2: hour**

**//--------------------------------------------------------**

**void showTimeTableTerm(int term, int day, int hour) {**

**cout << hour + 9 << ", " << timeTable[term][day][hour].subject << ", " << timeTable[term][day][hour].lecturer << ", " << timeTable[term][day][hour].roomNumber;**

**}**

**//--------------------------------------------------------**

**// Function name:showEntireTimetableTerm**

**//--------------------------------------------------------**

**void showEntireTimetableTerm() {**

**string day;**

**string term;**

**for (int i = 0; i <= 3; i++) {**

**cout << "-----------------" << endl;**

**if (i == 0) {**

**term = "winter";**

**}**

**else if (i == 1) {**

**term = "spring";**

**}**

**else if (i == 2) {**

**term = "summer";**

**}**

**else if (i == 3) {**

**term = "autumn";**

**}**

**cout << term << endl;**

**for (int j = 0; j <= 4; j++) {**

**cout << "-----------------" << endl;**

**if (j == 0) {**

**day = "monday";**

**}**

**else if (j == 1) {**

**day = "tuesday";**

**}**

**else if (j == 2) {**

**day = "wednesday";**

**}**

**else if (j == 3) {**

**day = "thrusday";**

**}**

**else if (j == 4) {**

**day = "friday";**

**}**

**cout << day << endl;**

**for (int k = 0; k <= 8; k++) {**

**showTimeTableTerm(i, j, k);**

**cout << endl;**

**}**

**}**

**}**

**}**

**//--------------------------------------------------------**

**// Function name: showfreeHoursTerms**

**//--------------------------------------------------------**

**void showFreeHoursTerm() {**

**string day;**

**string term;**

**for (int i = 0; i <= 3; i++) {**

**cout << "-----------------" << endl;**

**if (i == 0) {**

**term = "winter";**

**}**

**else if (i == 1) {**

**term = "spring";**

**}**

**else if (i == 2) {**

**term = "summer";**

**}**

**else if (i == 3) {**

**term = "autumn";**

**}**

**for (int j = 0; j <= 4; j++) {**

**if (j == 0) {**

**day = "monday";**

**}**

**else if (j == 1) {**

**day = "tuesday";**

**}**

**else if (j == 2) {**

**day = "wednesday";**

**}**

**else if (j == 3) {**

**day = "thrusday";**

**}**

**else if (j == 4) {**

**day = "friday";**

**}**

**for (int k = 0; k <= 8; k++) {**

**if (timeTable[i][j][k].isFree == true) {**

**cout << j + 9 << " hour of " << day << " in " << term << " is free" << endl;**

**}**

**}**

**}**

**}**

**}**