Design Document and Test Plan

Name of programming challenge for which you submit this document: Isolation Self-Assessment Tool

Pseudocode

In main.cpp

#include header files

Ask the user if they tested positive

If yes: (Positive)

Ask for the date of positive test

Create instance of date called datePositive with given date

Display length of isolation as 7 days

Exit

Else: (Tested negative)

Ask the user if they were exposed to someone who tested positive

If yes: (Exposed)

Ask for the date of exposure

Create instance of date called dateExposed with given date

Ask if they received 2nd vaccine dose

If yes: (Received 2nd dose):

Ask for vaccination date

Create instance of date called dateSecondDose with given date

Call calcDays(dateExposed, dateSecondDose) to determine the difference between date1 and date2

If date within 2 weeks of exposure: (Not fully vaccinated)

Display vaccination status as not fully vaccinated

Display length of isolation as 12 days

Exit

Else: (more than 2 weeks from exposure; Fully vaccinated)

Display vaccination status as fully vaccinated

Display length of isolation as 3 days

Exit

Else: (Not Received 2nd dose):

Display vaccination status as not fully vaccinated

Display length of isolation as 12 days

Else: (Not exposed)

Display length of isolation as 0 days

Exit

In Date.h

Add header guards

#include statements

Use namespace std

Create Class Date:

private:

int day;

int month;

int year;

public:

Date();

Date(int d, int m, int y);

bool setDay(int d);

bool setMonth(int m);

bool setYear(int y);

int getDay() const;

int getMonth() const;

int getYear() const;

string showDate() const;

End header guards

In Date.cpp

#include “Date.h”

Default constructor with In class init

Constructor init with input validation

Set default if input is invalid

setDay()

Validate and set day

Return false if invalid

Repeat for other class inits as in Date.h

In calcDays.h

Add header guards

#include statements

Use namespace std

int calcDays(const Date& date1, const Date& date2);

End header guards

In calcDays.cpp

#include “calcDays.h”

int calcDays(const Date& date1, const Date& date2) {

Calculate number of days between 01/01/2023 and date1 as daysDiff1

Calculate number of days between 01/01/2023 and date2 as daysDiff2

Calculate number of days between daysDiff1 and daysDiff2

}

Test Plan

Test #	Purpose	Input	Expected Output
1	Test Case 1	Positive, 02/01/2023	7 days
2	Test Case 2	Negative, No	0 days
3	Test Case 3	Negative, Yes, 02/01/2023, Yes, 01/01/2023, fully vaccinated	3 days
4	Test Case 4	Negative, yes, 02/01/2023, yes, 01/31/2023, not fully vaccinated	12 days
5	Test Case 4 (2nd variation)	Negative, yes, 02/01/2023, no, not fully vaccinated	12 days