LUKAS LABRIE

MODULE 3 PROJECT 1 CHADA TECH

C++ CODE

#include <iostream>

#include <string>

using namespace std;

// Make sure numbers look nice and tidy with two digits

string formatAsTwoDigits(int number) {

string result = to\_string(number);

if (result.length() < 2) {

result = "0" + result; // Slap a zero in front

}

return result;

}

// Need some stars for the menu?

string repeatStar(int count) {

string stars = "";

for (int i = 0; i < count; i++) {

stars += "\*"; // Stars all in a row

}

return stars;

}

// 24-hour format

string to24HourTime(int hours, int minutes, int seconds) {

// Combine the hours, minutes, and seconds with colons

return formatAsTwoDigits(hours) + ":" + formatAsTwoDigits(minutes) + ":" + formatAsTwoDigits(seconds);

}

// 12-hour format

string to12HourTime(int hours, int minutes, int seconds) {

string period = hours >= 12 ? "PM" : "AM";

hours = hours % 12;

if (hours == 0) hours = 12; // Midnight or noon? It's 12!

// Stitch it together with a space before AM/PM

return formatAsTwoDigits(hours) + ":" + formatAsTwoDigits(minutes) + ":" + formatAsTwoDigits(seconds) + " " + period;

}

// Show the user what they can do

void printMenu() {

// Fancy menu header

cout << repeatStar(10) + " MENU " + repeatStar(10) << "\n";

cout << "1. Add one second\n";

cout << "2. Add one minute\n";

cout << "3. Add one hour\n";

cout << "4. Display 12-hour time format\n";

cout << "5. Display 24-hour time format\n";

cout << "6. Quit\n";

// And a fancy footer

cout << repeatStar(28) << "\n";

}

// What does the user want to do?

int processMenuChoice() {

int choice;

cout << "Enter your choice: ";

cin >> choice;

return choice;

}

// Show off both ways to tell the time

void displayBothTimeFormats(int hours, int minutes, int seconds) {

cout << "24-Hour Time: " << to24HourTime(hours, minutes, seconds) << "\n";

cout << "12-Hour Time: " << to12HourTime(hours, minutes, seconds) << "\n";

}

// Add a second

void addSecond(int &hours, int &minutes, int &seconds) {

seconds++; // Tick

if (seconds >= 60) {

seconds = 0; // Reset and carry over

addMinute(hours, minutes, seconds); // Add a minute if we overflow

}

}

// Add minutes

void addMinute(int &hours, int &minutes, int &seconds) {

minutes++; // Tock

if (minutes >= 60) {

minutes = 0; // Reset and carry over

addHour(hours, minutes, seconds); // Add an hour if we overflow

}

}

// Add hours

void addHour(int &hours, int &minutes, int &seconds) {

hours = (hours + 1) % 24; // Cycle through 0-23

}

// Where everything starts and ends

int main() {

int hours = 0, minutes = 0, seconds = 0;

while (true) {

printMenu();

int choice = processMenuChoice();

// React to the choice

switch (choice) {

case 1: addSecond(hours, minutes, seconds); break;

case 2: addMinute(hours, minutes, seconds); break;

case 3: addHour(hours, minutes, seconds); break;

case 4: cout << to12HourTime(hours, minutes, seconds) << "\n"; break;

case 5: cout << to24HourTime(hours, minutes, seconds) << "\n"; break;

case 6: return 0; // Bye-bye!

default: cout << "Try again." << endl;

}

}

return 0;

}