**HealthProfile C++ Program**

**An Assignment**

**By**

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**UNIFIED MODELING LANGUAGE (UML) CLASS DIAGRAM**

**[Place your UML Class Diagram here]**

|  |
| --- |
| **HealthProfile** |
| + firstName: string  + last name: string  + gender: string  + month: int  + day: int  + year: int  + weight: int  + height: double  + Age: int+ BMI: double  + MaximumHeartRate: double  + TargetHeartRate: double  - section: FirstName  - section: last name  - section: Gender  - section: Month  - section: Day  - section: Year  - section: Weight  - section: Height  - section: Age |
| + display ()  - Add  - Edit |

**SOURCE CODES**

**HealthProfile.h**

**[Place your codes for HealthProfile.h here]**

**/\***

**\* HealthProfile.h**

**\* HealthProfile class definition. This file represents HealthProfile's public**

**\* interface without revealing implementations of HealthProfile's member**

**\* functions, which are defined in HealthProfile.cpp**

**\***

**\* Stub file for Programming Assignment #2**

**\***

**\* Name: [ Inim Andrew Esiet ]**

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**\* Department: [ computer Science ]**

**\***

**\*/**

**#include <string> // uses C++ string class**

**using namespace std;**

**// HealthProfile class definition**

**class HealthProfile**

**{**

**// public interface**

**public:**

**HealthProfile( string firstName, string lastName, string gender, int month, int day, int year, int weight, double height, int currentMonth, int currentDay, int currentYear); // constructor that initializes patient information**

**int getAge(); // function to get patients age in years**

**double getBMI(); // function to calculate and return BMI**

**int getMaximumHeartRate(); // function to calculate and return maximum heart rate**

**double getTargetHeartRate(); // function to calculate and return target heart rate**

**void getInformation(); // function to print object information**

**// TODO: Provide get and set function prototypes of each class attribute**

**void setFirstName ( string firstName);**

**void setLastName ( string lastName);**

**void setGender ( string gender );**

**void setMonth ( int month );**

**void setDay ( int day);**

**void setYear ( int year);**

**void setWeight ( int weight );**

**void setHeight ( double height);**

**int setAge (int currentMonth, int currentDay, int currentYear);**

**string getFirstName ();**

**string getLastName ();**

**string getGender ();**

**int getMonth ();**

**int getDay ();**

**int getYear ();**

**int getWeight ();**

**double getHeight ();**

**int getAge ();**

**double getBMI ();**

**int getMaximumHeartRate ();**

**double getTargetHeartRate ();**

**void getinformation ();**

**// Function prototypes for the constructor, getAge(), getBMI(), getMaximumHeartRate()**

**// getTargetHeartRate() and getInformation() has alrady been provided**

**// private interface**

**private:**

**string firstName; // variable to hold firstname**

**string lastName; // variable to hold lastname**

**string gender; // variable to hold gender**

**int month; // variable to hold month**

**int day; // variable to hold day**

**int year; // variable to hold year**

**double height; // variable to hold height**

**int weight; // variable to hold weight**

**int age; // variable to hold age**

**}; // end class HealthProfile**

**HealthProfile.cpp**

**[Place your codes for HealthProfile.cpp here]**

**/\***

**\* HealthProfile.cpp**

**\* HealthProfile member-function definitions. This file contains**

**\* implementations of the member functions prototyped in HealthProfile.h**

**\***

**\* Stub file for Programming Assignment #2**

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**\* Department: [ computer Science ]**

**\***

**\*/**

**#include <iostream>**

**#include <string> // uses C++ string class**

**#include <math.h> // uses C++ math class**

**#include <iomanip> // used iomanip class to format output text**

**#include "HealthProfile.h" // include definition of class HealthProfile**

**using namespace std;**

**// constructor initializes patient information**

**HealthProfile::HealthProfile( string firstName, string lastName, string gender, int month,**

**int day, int year, int weight, double height, int currentDay,**

**int currentMonth, int currentYear)**

**{**

**setFirstName( firstName ); // call set function to initialize firstName**

**setLastName( lastName ); // call set function to initialize lastName**

**setGender( gender ); // call set function to initialize gender**

**setMonth( month ); // call set function to initialize month**

**setDay( day ); // call set function to initialize day**

**setYear( year ); // call set function to initialize year**

**setWeight( weight ); // call set function to initialize weight**

**setHeight( height ); // call set function to initialize height**

**setAge( currentDay, currentMonth, currentYear); // call set function to calculate age**

**}**

**// funtion to print object information**

**void HealthProfile::getInformation()**

**{**

**cout << "\n\nHEALTH PROFILE FOR - " << getFirstName() << " " << getLastName() << endl;**

**cout << "First Name: " << setw(17) << getFirstName() << endl;**

**cout << "Last Name: " << setw(19) << getLastName() << endl;**

**cout << "Gender: " << setw(20) << getGender() << endl;**

**cout << "Date of Birth: " << setw(10) << getDay() << "/" << getMonth() << "/" << getYear() << endl;**

**cout << "Weight (in kilograms): " << setw(3) << getWeight() << endl;**

**cout << "Height (in meters): " << setw(10) << getHeight() << endl;**

**cout << "Age: " << setw(21) << getAge() << " year(s)" << endl;**

**cout << "Body Mass Index (BMI): " << setw(8) << getBMI() << endl;**

**cout << "Maximum Heart Rate: " << setw(7) << getMaximumHeartRate() << endl;**

**cout << "Target Heart Rate: " << setw(11) << getTargetHeartRate() << endl;**

**cout << "\nBMI VALUES CHART" << endl;**

**cout << "Underweight: less than 18.5" << endl;**

**cout << "Normal: between 18.5 and 24.9" << endl;;**

**cout << "Overweight: between 25 and 29.9" << endl;**

**cout << "Obese: 30 or greater" << endl;**

**}**

**// TODO: Provide implementaion details for functions in HealthProfileStub.h**

**string HealthProfile:: getFirstName () { //defines firstname**

**return firstName;**

**}**

**string HealthProfile:: getLastName () { //defines lastname**

**return lastName;**

**}**

**string healthProfile:: getGender () { //defines gender**

**return gender;**

**}**

**int HealthProfile::getMonth () { //defines month**

**return month;**

**}**

**int HealthProfile::getDay () { //defines day**

**return day;**

**}**

**int Healthprofile::getYear () { //defines Year**

**return year;**

**}**

**int HealthProfile::getWeight() { //defines weight**

**return weight;**

**}**

**double HealthProfile::getHeight() { //defines height**

**return height;**

**}**

**int HealthProfile::getCurrentMonth () { //defines currentMonth**

**return currentMonth;**

**}**

**int HealthProfile::getCurrentDay() { //defines currentDay**

**return currentDay;**

**}**

**int HealthProfile::getCurrentYear() {**

**return currentYear;**

**}**

**int HealthProfile::getAge () {**

**int age = currentYear - year;**

**return age;**

**}**

**double HealthProfile::getBMI () {**

**double BMI = weight / ( height \* height);**

**return BMI;**

**}**

**int HealthProfile::getMaximumHeartRate () { int maximumHeartRate = 220 - getAge();**

**return maximumHeartRate;**

**}**

**double HealthProfie::getTargetHeartRate ()**

**{ double targetHeartRate = 50/100 \* getMaximumHeartRate() - 85/100 \* getMaximumHeartRate();**

**return targetHeartRate;**

**}**

**// Implementation for the constructor and getInformation function has already been provided**

**main.h**

**[Place your codes for main.h here]**

**/\***

**\* main.cpp**

**\* HealthProfile program . This file represents HealthProfile's public**

**\* interface without revealing implementations of HealthProfile's member**

**\* functions, which are defined in HealthProfile.cpp**

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**\* Stub file for Programming Assignment #2**

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**\* Department: [ computer Science ]**

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**\*/**

**#include <iostream>**

**#include <string> // uses C++ string class**

**#include "HealthProfile.h" // include definition of class HealthProfile**

**using namespace std;**

**int main()**

**{**

**// Variable declarations**

**string firstName;**

**string lastName;**

**string gender;**

**int month;**

**int day;**

**int year;**

**double height;**

**int weight;**

**int currentDay;**

**int currentMonth;**

**int currentYear;**

**// Prompt for patient information**

**cout << "Welcome to our program to computerize healthcare records\n";**

**cout << "please fill-in your information as requested. Thank you\n";**

**cout << "\nKindly enter todays day, month and year using numeric representations only\n";**

**cout << "e.g. 3, 5, 2015 indicating 3rd of May, 2015, else software would break\n";**

**// TODO: Put your code to receve input from user here**

**cout<<"input your first name";**

**cin>>firstName;**

**cout<<"input your second name";**

**cin>>lastName;**

**cout>>"input your Gender- male/ female";**

**cin>>gender;**

**cout<<"input your birthmonth";**

**cin>>month;**

**cout<<"input your birthday";**

**cin>>day;**

**cout<<"Input your birthyear";**

**cin>>year;**

**cout<<"input your weight";**

**cin>>weight;**

**cout<<"input your height";**

**cin>>height;**

**// Instantiate an object of class HealthProfile - passing relevant values to the constructor**

**HealthProfile Patient1 ( firstName, lastName, gender, month, day, year, currentMonth, currentDay, CurrentYear);**

**Patient1.getInformation()**

**// Print information from the object - by calling getInformation() function**

**}**

**PROGRAM OUTPUT**

**[Place your program output here]**