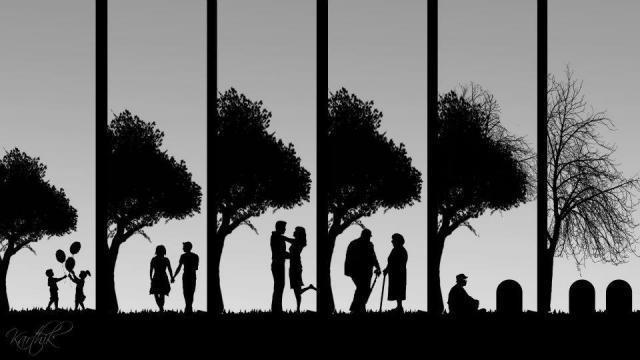
CSC 1300 Program 1

Spring 2023

Life Expectancy Calculator



# Important Dates

**Assigned:** Wednesday, January 25, 2023

**Due:** Wednesday, February 15, 2023

Refer to your section’s lecture syllabus to review the late policy on programming assignments.

# How to turn in your program:

Create a folder that contains your source file named **yourTTUusername\_program1** (replace **yourTTUusername** with your TTU username). Name your source file **yourTTUusername\_prog1.cpp** (replace **yourTTUusername** with your TTU username). Place your source file inide the folder. Zip the folder and upload it to iLearn under **Assignments** and then **Program 1**.

# Programs in lecture are like tests

Review the academic misconduct policy in the syllabus! You can not share code with others on this assignment. Your submission must be your own individual effort, like an exam would be. If you get stuck, get help from your instructors or teaching assistants.

# Program Description

Your program must ask the user seventeen questions in order to calculate and display the user’s life expectancy.

# Program Input

A list of information you must obtain from the user is below:

1. First name of user
2. Current age (starting point)
3. Gender (male/female)
4. Current weight (underweight, just right, overweight, obese)
5. Smoke or vape (yes/no)
6. Drink more than one alcoholic beverage a day? (yes/no)
7. Exercise (none, very little, periodically, active, athlete)
8. Own pet (yes/no)
9. Married (divorced, single, married, happily married)
10. Caretaker (yes/no)
11. Job (hate job, dislike job, it’s ok, enjoyable, love it!)
12. Eat breakfast every day (yes/no)
13. Parents/grandparents die before age 50 (yes/no)
14. Eat fruits daily (yes/no)
15. Eat vegetables daily (yes/no)
16. Hang out with friends (never, periodically, often)
17. Education Level (No degrees, HS degree, Associates degree, Bachelors degree, Masters/PHD degree)

# Program Output

Your program should output the user’s name, current age, and also their life expectancy.

# Program Specifications

* **Indentions & Commenting** – follow good programming practice as shown in class. All lines of code should be indented properly and consistently. There should be a comment block at the top of the source file containing the title (filename), author, date, and purpose. There should be comments throughout your code explaining the major sections of code like input, processing/calculations, and output.
* **Variables**:
  + If you need yes/no information, then you should make the variable a **Boolean** data type. You will have to create a variable that will first hold a **char** (to get the y/n information) and then you will have to see if the user answered yes and if they did, then you set this **Boolean** variable to **true**. Otherwise, set it to **false**.
  + For information that could have 3 to 5 answers, you should give the user a menu with numbers representing each of the choices. You should read in the user’s response into an **integer** variable.
  + For male or female, you should make the variable a **char** (m or f).
* **Asking for input:**
  + In all programs you should always make sure that the user can understand exactly what they are supposed to be entering. This prevents communication mistakes between the user & programmer.
  + You may assume for this assignment that the user will enter in a valid response and valid data type.
* **Calculation**
  + If the person is **60 or BELOW**, then their starting life expectancy is **60.**
  + If the person is **OVER 60**, then their starting life expectancy is **their current age instead.**
  + **Example:** starting age is 12, then their starting life expectancy is 60.
  + **Another Example:** starting age is 63, then their starting life expectancy is 63.
  + Look at the chart below to calculate their resulting life expectancy according to how they answered your questions. To evaluate their answers, you will need a lot of branching statements.
  + **If a resulting (final) life expectancy is lower than the person’s current age, then make the final life expectancy the same as their age.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **How to Add and Remove Points to Life Expectancy** | | | | | |
| **Attribute about the Person** | **option 1** | **option 2** | **option 3** | **option 4** | **option 5** |
| **Gender** | Male (0) | Female (+4) |  |  |  |
| **Current weight** | Underweight (-1) | Just right (+5) | Overweight (-2) | Obese (-5) |  |
| **Smoke** | Yes (-5) | No (+5) |  |  |  |
| **Drink more than one alcoholic beverage a day** | Yes (-5) | No (+2) |  |  |  |
| **Exercise** | None (-5) | Very Little (-2) | Periodically (0) | Active (+5) | Athlete (+7) |
| **Own Pet** | Yes (+3) | No (-1) |  |  |  |
| **Married** | Divorced (-5) | Single (-2) | Married (+2) | Happily Married (+5) |  |
| **Caretaker** | Yes (-2) | No (0) |  |  |  |
| **(A caretaker is a nurse/doctor or someone who takes care of their parents/grandparents, etc.)** |
| **Job Stress** | Hate job (-5) | Dislike job (-2) | Job is ok (0) | Job is enjoyable (+2) | Love job! (+5) |
| **Eat breakfast every day** | Yes (+5) | No (-2) |  |  |  |
| **Parents/grandparents died before age 50** | Yes (-2) | No(+5) |  |  |  |
| **Eat fruits daily?** | Yes (+5) | No (-5) |  |  |  |
| **Eat vegetables daily?** | Yes (+5) | No (-5) |  |  |  |
| **Hang out with friends** | Never (-2) | Occasionally (0) | Often (+2) |  |  |
| **Education Level** | No degrees (-5) | HS degree (-2) | Associates degree (+2) | Bachelors degree (+5) | Masters/PHD degree (+7) |

* **Output**
  + We are going to be very picky on your output. **It should look like what you see in this assignment**!
  + Yes – you DO need to print out all the lines that tell the life expectancy after each category/calculation.
  + Then, a row of stars and then a blank line.
  + The Name:, Current Age: and Life Expectancy: column should all be right aligned and have a field width of 22. Also, when you print out these labels (like Name:), you should add five spaces after the colon.
  + The answers to name, age & life expectancy should all be left aligned and have a field width of 30.
  + Then another blank line
  + Then, a row of stars exactly like the row on the top.
  + **Refer to sample output.**

WARNING: This program does not have a difficult algorithm, but it is long. **You must start soon** or you will not finish the program. Remember there are MANY people on the teaching staff available 7 days a week that can help you. Most tutoring is in BRUN 410 but there are other locations, too. Refer to the tutoring schedule (link at top of General channel in our Team).

# Sample Output 1

All user input is highlighted in **yellow**.

\*\*\*\*\*\*\*\*\*\* Life Expectancy Calculator \*\*\*\*\*\*\*\*\*\*

Enter your name: Sqidward Q. Tentacles

Enter your current age: 36

Are you male or female? (Enter m or f): m

What is your weight status?

(1)Underweight, (2)Just right, (3)Overweight, (4)Obese

(Enter 1, 2, 3 or 4): 1

Do you smoke cigarettes? (Enter y or n): y

Do you drink more than one alcoholic beverage every day?

(Enter y or n): y

Do you exercise?

(1)None, (2)Very Little, (3)Periodically, (4)Active, (5)Athlete

(Enter 1, 2, 3, 4 or 5): 1

Do you have a pet? (Enter y or n): n

Are you married?

(1)Divorced, (2)Single, (3)Married, (4)Happily Married

(Enter 1, 2, 3, or 4): 1

Are you a caretaker? (Enter y or n): y

How do you feel about your job?

(1)Hate it!, (2)Dislike it, (3)It's ok, (4)Enjoyable, (5) Love it!

(Enter 1, 2, 3, 4, or 5): 1

Do you eat breakfast every day? (Enter y or n): n

Did either of your biological parents or any of your biological

grandparents die before of age 50? (Enter y or n): y

Do you eat fruits every day? (Enter y or n): n

Do you eat vegetables every day? (Enter y or n): n

Do you hang out with your friends?

(1)Never, (2)Periodically, (3)Often

(Enter 1, 2 or 3): 1

What is your education level?

(1)No degrees, (2)Highschool degree, (3)Associates degree,

(4)Bachelors degree, (5)Masters/PHD degree

(Enter 1, 2, 3, 4, or 5): 1

Starting Life Expectancy: 60

Life Expectancy after gender: 60

Life Expectancy after weight: 59

Life Expectancy after smoke: 54

Life Expectancy after alcohol: 49

Life Expectancy after exercise: 44

Life Expectancy after pet: 43

Life Expectancy after married: 38

Life Expectancy after caretaker: 36

Life Expectancy after job stress: 31

Life Expectancy after breakfast: 29

Life Expectancy after died: 27

Life Expectancy after fruits: 22

Life Expectancy after vegetables: 17

Life Expectancy after friends: 15

Life Expectancy after education level: 10

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Name: Squidward Q. Tentacles

Current Age: 36

Life Expectancy: 36

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# Sample Output 2

\*\*\*\*\*\*\*\*\*\* Life Expectancy Calculator \*\*\*\*\*\*\*\*\*\*

Enter your name: Bob Ross

Enter your current age: 79

Are you male or female? (Enter m or f): m

What is your weight status?

(1)Underweight, (2)Just right, (3)Overweight, (4)Obese

(Enter 1, 2, 3 or 4): 1

Do you smoke cigarettes? (Enter y or n): y

Do you drink more than one alcoholic beverage every day?

(Enter y or n): y

Do you exercise?

(1)None, (2)Very Little, (3)Periodically, (4)Active, (5)Athlete

(Enter 1, 2, 3, 4 or 5): 1

Do you have a pet? (Enter y or n): n

Are you married?

(1)Divorced, (2)Single, (3)Married, (4)Happily Married

(Enter 1, 2, 3, or 4): 1

Are you a caretaker? (Enter y or n): y

How do you feel about your job?

(1)Hate it!, (2)Dislike it, (3)It's ok, (4)Enjoyable, (5) Love it!

(Enter 1, 2, 3, 4, or 5): 1

Do you eat breakfast every day? (Enter y or n): n

Did either of your biological parents or any of your biological

grandparents die before of age 50? (Enter y or n): y

Do you eat fruits every day? (Enter y or n): n

Do you eat vegetables every day? (Enter y or n): n

Do you hang out with your friends?

(1)Never, (2)Periodically, (3)Often

(Enter 1, 2 or 3): 1

What is your education level?

(1)No degrees, (2)Highschool degree, (3)Associates degree,

(4)Bachelors degree, (5)Masters/PHD degree

(Enter 1, 2, 3, 4, or 5): 1

Starting Life Expectancy: 79

Life Expectancy after gender: 79

Life Expectancy after weight: 78

Life Expectancy after smoke: 73

Life Expectancy after alcohol: 68

Life Expectancy after exercise: 63

Life Expectancy after pet: 62

Life Expectancy after married: 57

Life Expectancy after caretaker: 55

Life Expectancy after job stress: 50

Life Expectancy after breakfast: 48

Life Expectancy after died: 46

Life Expectancy after fruits: 41

Life Expectancy after vegetables: 36

Life Expectancy after friends: 34

Life Expectancy after education level: 29

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Name: Bob Ross

Current Age: 79

Life Expectancy: 79

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# Sample Output 3

All user input is highlighted in **yellow**.

\*\*\*\*\*\*\*\*\*\* Life Expectancy Calculator \*\*\*\*\*\*\*\*\*\*

Enter your name: Angela Kinsey

Enter your current age: 51

Are you male or female? (Enter m or f): f

What is your weight status?

(1)Underweight, (2)Just right, (3)Overweight, (4)Obese

(Enter 1, 2, 3 or 4): 2

Do you smoke cigarettes? (Enter y or n): n

Do you drink more than one alcoholic beverage every day?

(Enter y or n): n

Do you exercise?

(1)None, (2)Very Little, (3)Periodically, (4)Active, (5)Athlete

(Enter 1, 2, 3, 4 or 5): 2

Do you have a pet? (Enter y or n): y

Are you married?

(1)Divorced, (2)Single, (3)Married, (4)Happily Married

(Enter 1, 2, 3, or 4): 3

Are you a caretaker? (Enter y or n): n

How do you feel about your job?

(1)Hate it!, (2)Dislike it, (3)It's ok, (4)Enjoyable, (5) Love it!

(Enter 1, 2, 3, 4, or 5): 3

Do you eat breakfast every day? (Enter y or n): y

Did either of your biological parents or any of your biological

grandparents die before of age 50? (Enter y or n): n

Do you eat fruits every day? (Enter y or n): n

Do you eat vegetables every day? (Enter y or n): y

Do you hang out with your friends?

(1)Never, (2)Periodically, (3)Often

(Enter 1, 2 or 3): 1

What is your education level?

(1)No degrees, (2)Highschool degree, (3)Associates degree,

(4)Bachelors degree, (5)Masters/PHD degree

(Enter 1, 2, 3, 4, or 5): 4

Starting Life Expectancy: 60

Life Expectancy after gender: 64

Life Expectancy after weight: 69

Life Expectancy after smoke: 74

Life Expectancy after alcohol: 76

Life Expectancy after exercise: 74

Life Expectancy after pet: 77

Life Expectancy after married: 79

Life Expectancy after caretaker: 79

Life Expectancy after job stress: 79

Life Expectancy after breakfast: 84

Life Expectancy after died: 89

Life Expectancy after fruits: 84

Life Expectancy after vegetables: 89

Life Expectancy after friends: 87

Life Expectancy after education level: 92

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Name: Angela Kinsey

Current Age: 51

Life Expectancy: 92

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