

**Assignment purpose:** To compile, build, and execute an interactive application written in the C++ programming language with simple data types, mathematical equations, flow of control constructs (example: if/ else/while), and programmer defined functions using both pass by value and pass by reference parameters, **separate compilation**.

This assignment will use many of the features from Assignment 2. The added features are highlighted in yellow.

Write a program that will compare and calculate some information about ages, leap years, and age categories.

**Age Comparison , generation, and Leap years:**

Create 6 programmer defined functions – separate the function prototypes from the definitions into 2 files:

**function.h and function .cpp**

**The lastname\_A3 file will include the main function**

- **An integer function to ask and get the name, age , and year (use 2 reference parameters (name and year) – return the age**
- **A void function to find the generation category, based on the following (use 2 value parameters: name and year):**
  - **The Greatest Generation (G.I. Generation):** Born approximately 1901-1927.
  - **The Silent Generation (Traditionalists):** Born approximately 1928-1945.
  - **Baby Boomers:** Born approximately 1946-1964.
  - **Generation X:** Born approximately 1965-1980.
  - **Millennials (Generation Y):** Born approximately 1981-1996.
  - **Generation Z (Centennials, iGen):** Born approximately 1997-2012.
  - **Generation Alpha:** Born approximately 2013-2024.
  - **Generation Beta:** A proposed name for those born approximately 2025 and onward.
  - **Before 1901 –** print a message
- **An integer function to find and print the youngest name (pass 6 value parameters, names and ages) – return the youngest age**
- **An integer function to find and print the oldest name (pass 6 value parameters, names and ages) – return the oldest age**
- **A void function to print all the leap years up to 2025, keep in mind 1900 was not a leap year, but 2000 was a leap year (pass the name and the birth year by const reference parameters)**
- **An integer function to call FindOldest and call FindYoungest. Inside this function print the values of the oldest and youngest ages and return the difference AND print the DIFFERENCE IN THE MAIN FUNCTION**

Ask and get a first name, age, and birth year for 3 people

Print a message indicating the category for each

Find and print the youngest name (if there are 2 with the same age, only one name should print)

Find and print the oldest name (if there are 2 with the same age, only one name should print)

Print the oldest and youngest ages and calculate and print the difference

Iterate over all the years the user has lived and print which years were leap years.

Use a loop (while or do/while) to continue to have the user enter the information for 3 new people as long as they enter ' Y' or 'y' to continue.

Sample Output : (see other file)

**Additional instructions:**

- Be sure to comment your code (see the template files – function.h, function.cpp, and lastname\_A3.cpp)
- Submit all three files
- Include a program header COMMENT with the following information:
  - Name, date, course, and a brief description of the assignment
- Test your code in an IDE before submitting
- One source code file (unformatted text) will be submitted
- The file name must match the assignment
- The code must be submitted on time in order to receive credit (11:59 PM on the due date)
  - NOTE: there is a grace period until 8:00 AM the following day
- The assignment allows multiple submissions you may make revisions and resubmit until the final due date
- Late submissions (after 8 AM or sent by email) will not be accepted or graded

Modifying data and submitting it as your own is a fraudulent practice—specifically, plagiarism—and is no different than copying paragraphs of information from a book or journal article and calling it your own (make sure that you work independently and submit only your own work)

**This programming assignment is individual work, sharing code is considered cheating,**

**The use of AI to assist in this assignment is prohibited.**