The College of Staten Island
Department of Computer Science
Spring 2021 – CSC 126
Mrs. Nevins

Lab #4a - Whale Simulation

Background

Most animal species have a minimum population threshold number. What this means is that if fewer than this number of animals exist, the population stops breeding and the species will die out, even if there are still breeding pairs.

Sometimes the population survival threshold is in the thousands, for example, as was the case with the passenger pigeon. Sometimes the threshold is low. It varies with the species. The population survival threshold for the Right Whale is about **165**. Currently there are about **1500** Right Whales left in the South Atlantic (near Argentina). Their numbers continue to decrease due to hunting pressures. (The Right Whale is so named because it floats when killed. This makes it easier to retrieve and the "right" whale to be killed.)

You may assume that:

1. At the beginning of each year, if breeding took place, the population will increase by **5** percent due to new births.
2. No hunting will take place at the start of the year. Therefore, the entire population increase will occur if breeding takes place.
3. About **17** percent of the population will be killed after the hunting season starts. Include newborns in this total, i.e. calculate after you increment the population numbers from breeding
4. As a simplification, the gestation period can be ignored. (The gestation period is the length of pregnancy.)
5. Breeding stops when the population becomes less than **165**.

These assumptions are obviously not enough to accurately describe the entire situation. What you are being asked to do is to solve a simplified problem.

Your Task

Write a C++ program using the while loop to calculate when the population ceases breeding and thus dies out. You do not have to input any values. Define the birth percentage, kill percentage, and survival threshold using constant variable declarations.

Your output should be similar to this.

YEAR	ALIVE AT START	NEW BIRTHS	KILLED	ALIVE AT END
1	1500	75	267	1308
2	1308	65	233	1140
3	1140	57	203	994
.	.	.	.	.
.	.	.	.	.

This program written by Insert your name here.

In your calculations, do not count fractional births or deaths. For example, 6.3 should be considered to be 6 and 45.8 should be considered to be 45.