// assumptions - these will need to be verified with the customer/end user

1. current population = 312,032,543

2. 1 year = 365 days // leap years are not considerred

3. 1 birth = 1 person // multiple births are calculated in this rate

4. 1 death = 1 person // catastrophe resulting in multiple simultaneous deaths is calculated in this rate

5. 1 immigrant = 1 person // groups/families are calculated in this rate

6. future population is calculated from time now to time+365 days // no extrapolation to meet year end

// user inputs:

1. current population

2. birth rate

3. death rate

4. immigration rate

// outputs:

1. estimated population in 1 year

2. estimated population in 2 years

3. estimated population in 3 years

4. estimated population in 4 years

5. estimated population in 5 years

// algorithm: a set of actions in a specific order

1. Prompt user for current population

2. Store user input as currentPopulation

3. Prompt user for birth rate as frequency per second // There is one birth every x seconds, user input x

4. Store user input as birthRate

5. Prompt user for death rate as frequency per second // There is one death every y seconds, user input y

6. Store user input as deathRate

7. Prompt user for immigration rate as frequency per second // There is one immigrant every z seconds, user input z

8. Store user input as immigrationRate

9. numBirthYear = 1/birthRate \* 86400 \* 365 // Number of births per year

10. *numDeathYear* = 1/*deathRate* \* 86400 \* 365 // Number of deaths per year

11. *numImmigrantYear* = 1/*immigrantRate* \* 86400 \* 365 // Number of immigrants per year

12. *estimatedPopulation1* = *currentPopulation + numBirthYear - numDeathYear + numImmigrantYear*

13. *estimatedPopulation2* = *estimatedPopulation1 + numBirthYear – numDeathYear + numImmigrantYear*

14. *estimatedPopulation3 = estimatedPopulation2 + numBirthYear – numDeathYear + numImmigrantYear*

15. *estimatedPopulation4 = estimatedPopulation3 + numBirthYear – numDeathYear + numImmigrantYear*

16 *estimatedPopulation5 = estimatedPopulation4 + numBirthYear – numDeathYear + numImmigrantYear*

17. Output *estimatedPopulation1, estimatedPopulation2, estimatedPopulation3, estimatedPopulation4, estimatedPopulation5* // display estimated populations for next 5 years