

# 1994 ACM MID-CENTRAL REGIONAL PROGRAMMING CONTEST

## Problem #3 - Deer Me

Source File: `deer.{c|cpp|pas}`

Input File: `(none)`

Output File: `(screen)`

The Forest & Game Commission wishes to estimate the deer population of one county for the next 15 years. A recent survey indicates that there are presently 9,395 deer living in the county. Of those, 1,703 are adult males and 3,714 are adult females ("adult" deer are those over two years of age). The remaining deer are fawns (under two years of age), and of those, 2,058 are male and 1,920 are female. Since no figures are available, it will be estimated that 2/3 of the fawns are newborns (under one year of age).

From data collected over the past several years, the FGC knows the following information regarding the deer population from year to year. For each 100 females in the herd, there are 150 fawns born. Of those fawns born, 52% are males and 55% live to be one year of age. Of those living to be one year of age, 60% live to be adults. The natural survival rate of adults is 90%.

Write a program that displays a table as shown below, estimating the deer population for the next 15 years (start with 1994 as the first year and display estimates until 2009), assuming that an annual 75% harvest of adult males will be allowed (that is, 75% of adult males will be eliminated by hunting). The estimates for each year should be rounded to the closest integer, and these integer values should be used as input for the next generation.

The first part of the output should appear as shown below:

YEAR	HERD SIZE	ADULT MALES	ADULT FEMALES	MALE FAWNS	FEMALE FAWNS	MALE NEWBORN	FEMALE NEWBORN
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1994	9395	1703	3714	2058	1920	1372	1280
1995	11424	667	3727	3652	3378	2897	2674
1996	12984	553	3777	4500	4154	2907	2683