

**EG02021 Mathematics****Class 8: Matrix****6.1 Matrix Operations****□ Leslie Matrices**

**Exercise 1: Bird Population.** The Leslie matrix for a bird population consisting of 100 hatchlings and 200 adults is  $G = \begin{bmatrix} 0.8 & 1.2 \\ 0.6 & 0.5 \end{bmatrix}$

- Interpret the four numbers in the matrix  $G$ .
- Estimate the number of hatchlings and the number of adults next year.

**□ Matrix Products**

**Exercise 1: Bird Population.** Let  $G$  be the Leslie matrix in Example 2 and let  $v$  be this year's population vector.

- Compute the matrix product  $Gv$ .
- Interpret the product  $Gv$ .

**Exercise 2:** Compute the product  $C=AB$ .

- $A = \begin{bmatrix} 1 & -3 & 0 \\ -2 & -1 & 4 \end{bmatrix}$ ,  $B = \begin{bmatrix} 2 & -1 \\ 5 & 3 \\ -4 & -5 \end{bmatrix}$
- $A = \begin{bmatrix} 1 & -3 & 0 \\ -2 & -1 & 4 \end{bmatrix}$ ,  $B = \begin{bmatrix} 2 & -1 & 5 \\ 3 & -4 & -5 \end{bmatrix}$

**□ Matrix Algebra**

**Exercise:** Let  $A = \begin{bmatrix} 4 & 2 \\ 1 & -2 \end{bmatrix}$ ,  $B = \begin{bmatrix} -2 & -3 \\ 4 & 1 \end{bmatrix}$ , and  $C = \begin{bmatrix} 6 & 1 \\ -3 & 2 \end{bmatrix}$ .

- Compute  $A(B+C)$ .
- Compute  $AB+AC$ .