



## Algorithms & Data Structures

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### **Assignment03** Due Wed 6<sup>th</sup> Oct 08:00 AM

#### **1 Problem 1**

Let  $A$  is an array of  $n$  elements as depicted in the following.

Write a pseudocode for binary searching over the array,  $A$ , which consists of  $n$  integer elements?

$$A = \begin{pmatrix} a_0 \\ a_1 \\ a_2 \\ \vdots \\ a_n \end{pmatrix}$$

## 2 Problem 2

Let  $A$  and  $B$  be matrices of order  $m \times n$ , while  $m$  is the number of rows and  $n$  is the number of columns as they are represented in the following graph.

$$A = \begin{pmatrix} a_{1,1} & a_{1,2} & \dots & a_{1,n} \\ a_{2,1} & a_{2,2} & \dots & a_{2,n} \\ a_{3,1} & a_{3,2} & \dots & a_{3,n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{m,1} & a_{m,2} & \dots & a_{m,n} \end{pmatrix}$$

$$B = \begin{pmatrix} b_{1,1} & b_{1,2} & \dots & b_{1,n} \\ b_{2,1} & b_{2,2} & \dots & b_{2,n} \\ b_{3,1} & b_{3,2} & \dots & b_{3,n} \\ \vdots & \vdots & \vdots & \vdots \\ b_{m,1} & b_{m,2} & \dots & b_{m,n} \end{pmatrix}$$

Write the pseudocode of two matrices multiplication and estimate its time complexity?

**Note:** You are not asked to write a Java program. Just write a set of steps to solve the problem of multiplying two matrices.