

Introduction to Programming

UNV102



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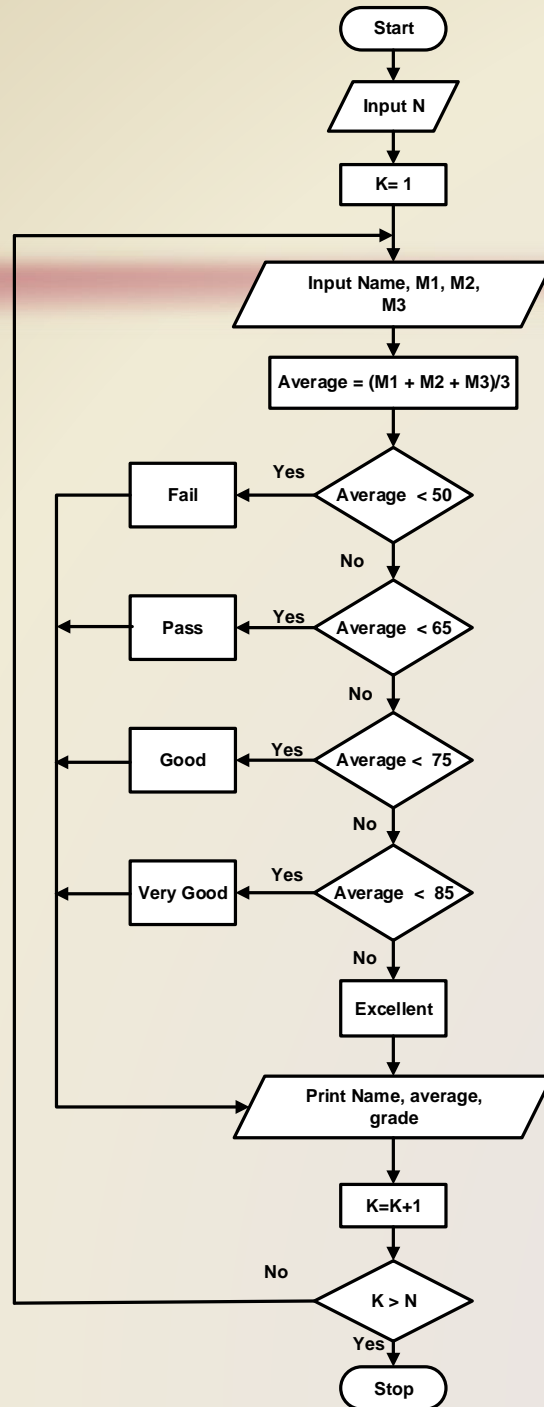
Faculty of Engineering – Damietta University

Example 4-10

Write the pseudo-code and draw the flowchart to enter the name of N students and three marks for each student and print the student name, average mark, and grade.

Mark	Grade
$= 85 >$	Excellent
$85 \leq 75 >$	Very Good
$75 \leq 65 >$	Good
$65 \leq 50 >$	Pass
$50 <$	Fail

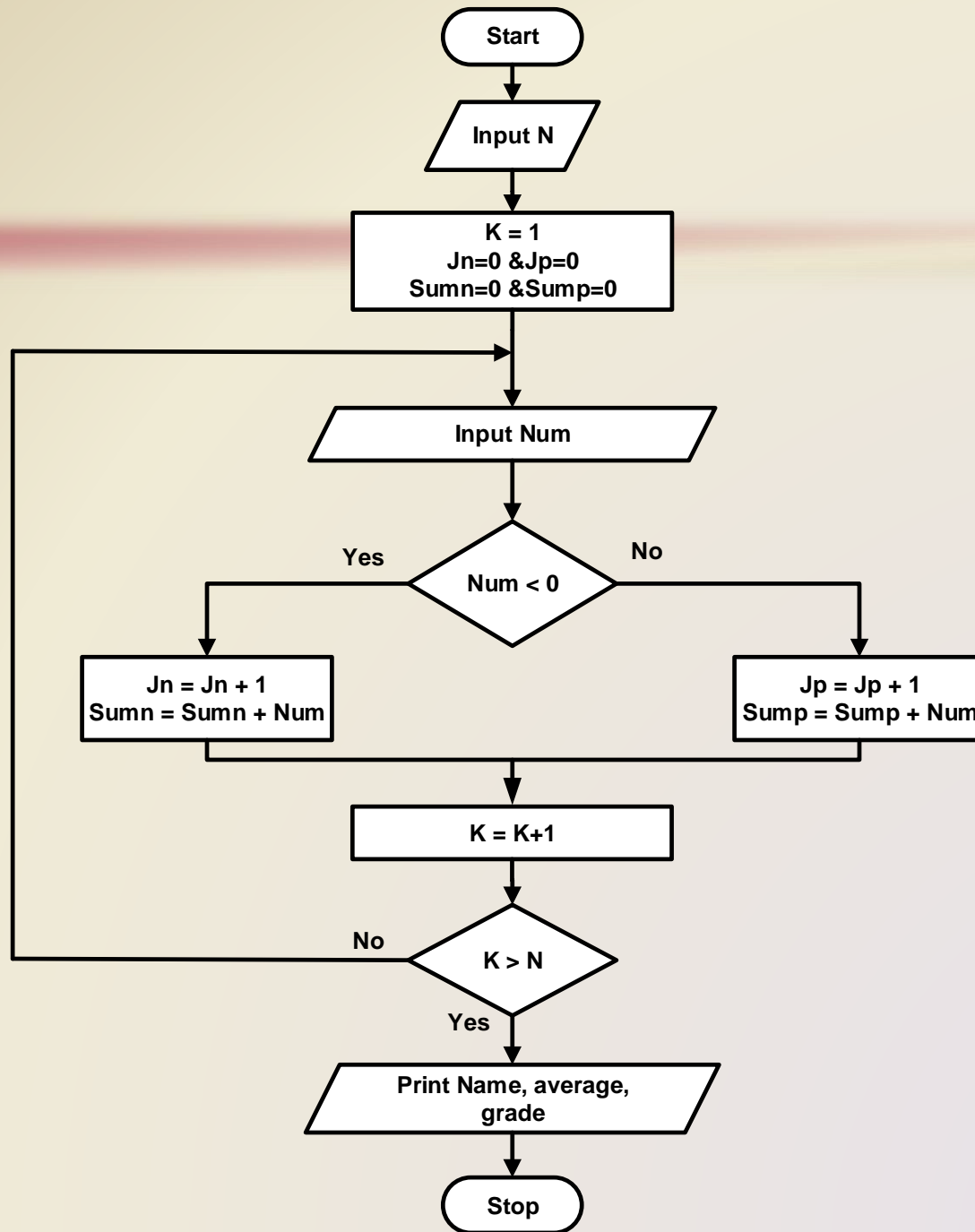
Flowchart



Example 4-11

Write the pseudo-code and draw the flowchart to accept N numbers and get the summation of negative, the summation of positive numbers and the number in each group.

Flowchart

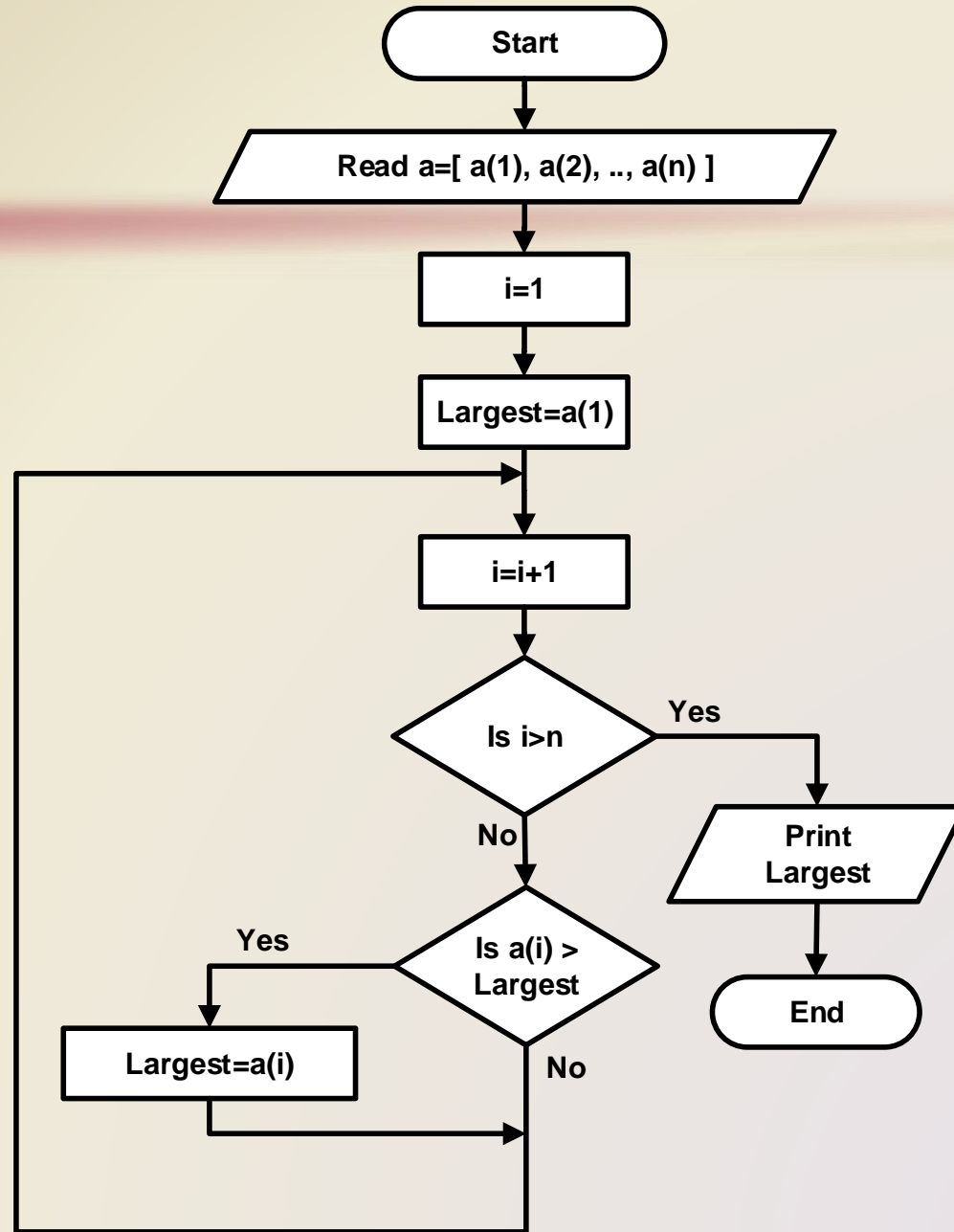


Example 4-9

Write the pseudo-code and draw the flowchart to find the largest number in a list of numbers.

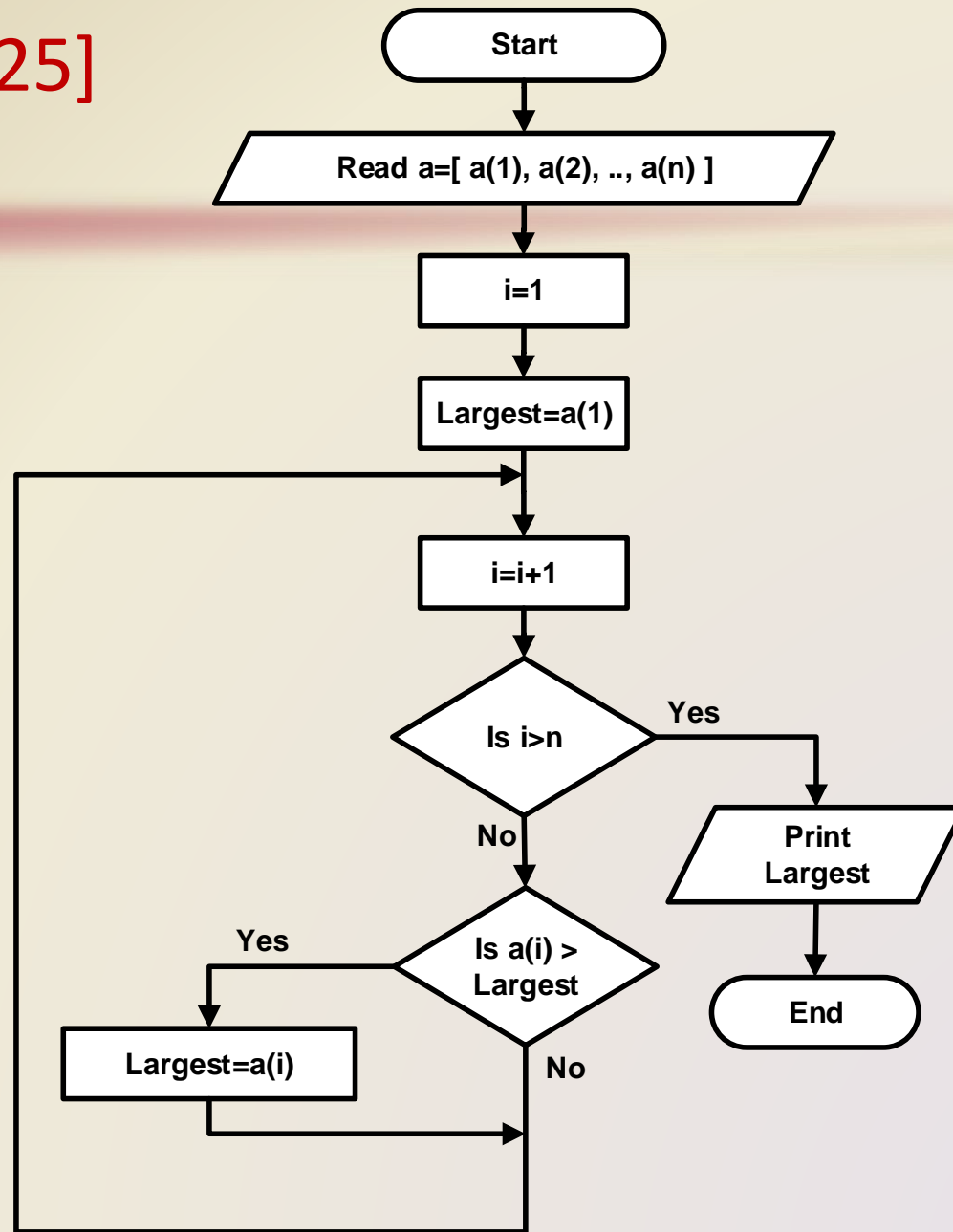
$a = [8, 3, 4, 10, 5]$

Flowchart



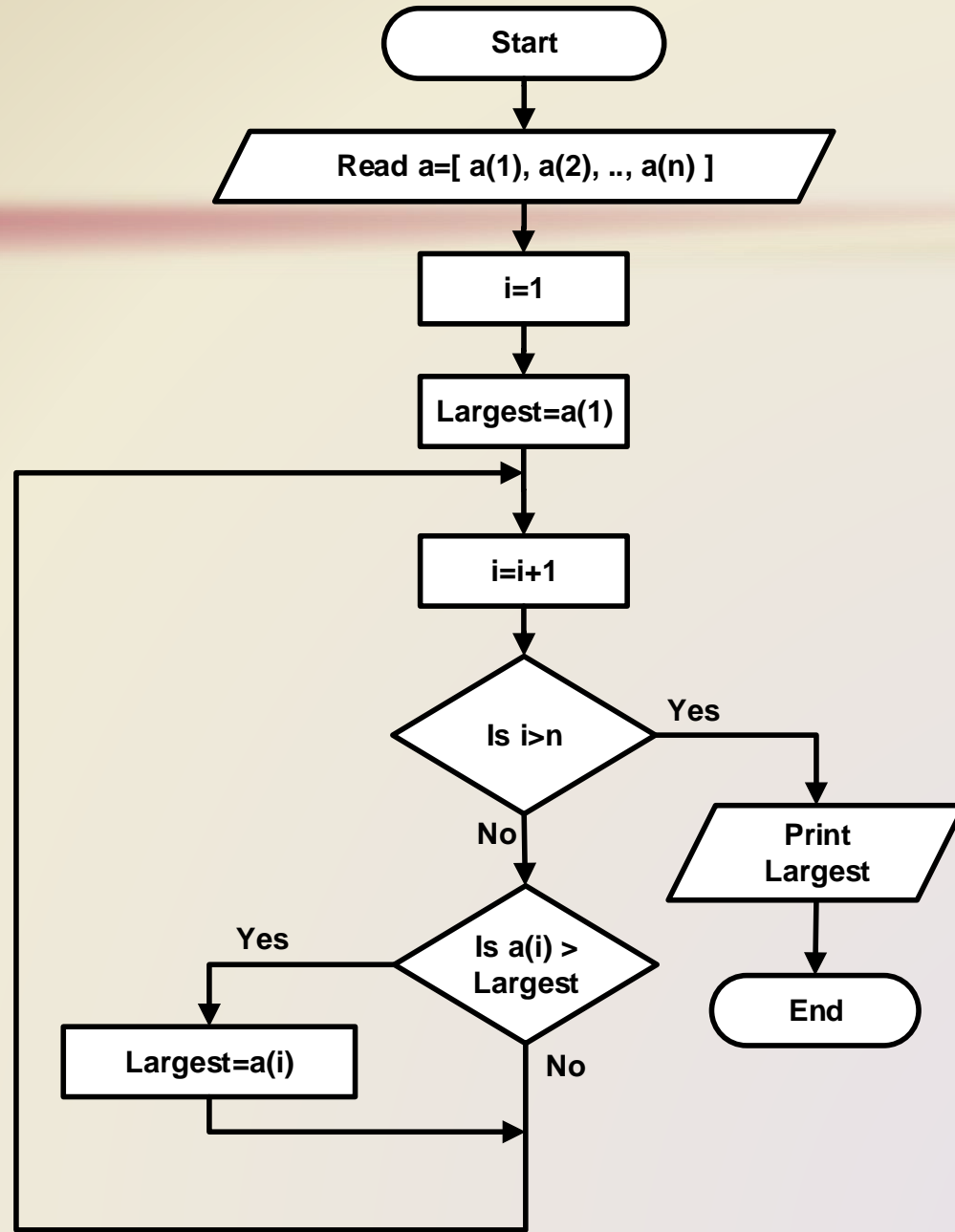
$a = [8, 12, 14, 10, 25]$

Flowchart



$a = [8, 2, 4, 1, 5]$

Flowchart

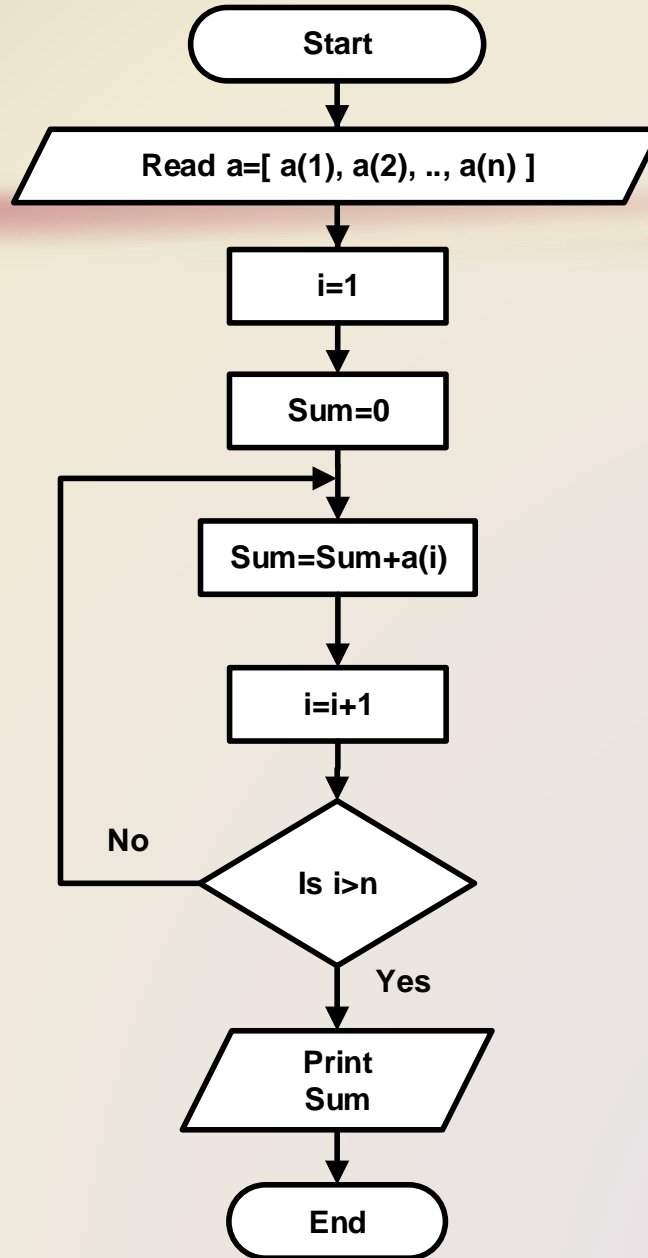


Ex A-11 Page_37

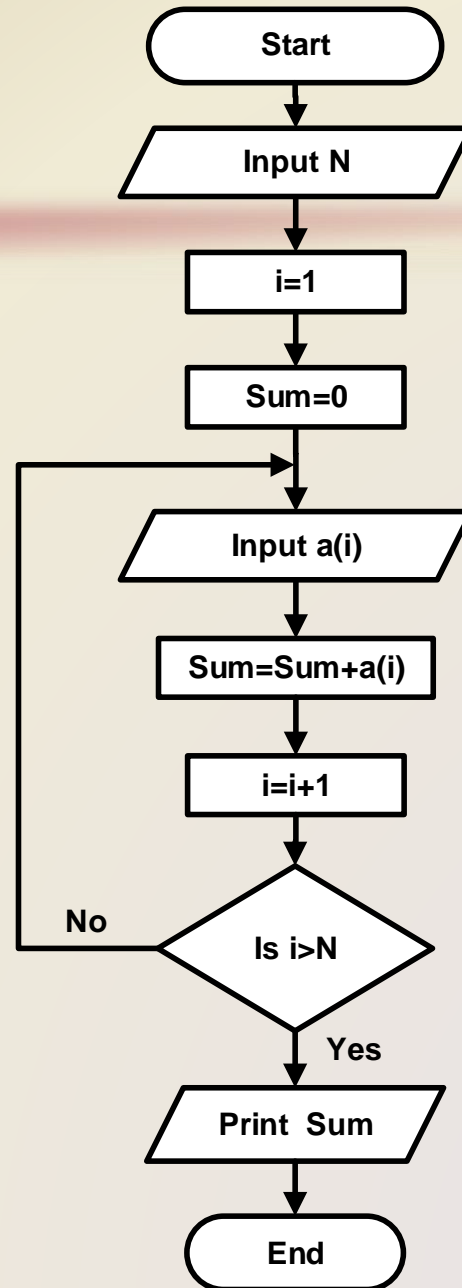
Draw a flowchart to get the summation of the elements of the matrix $A(m)$ i.e.

$$X = \sum_{i=1}^m A(i)$$

Flowchart



Flowchart

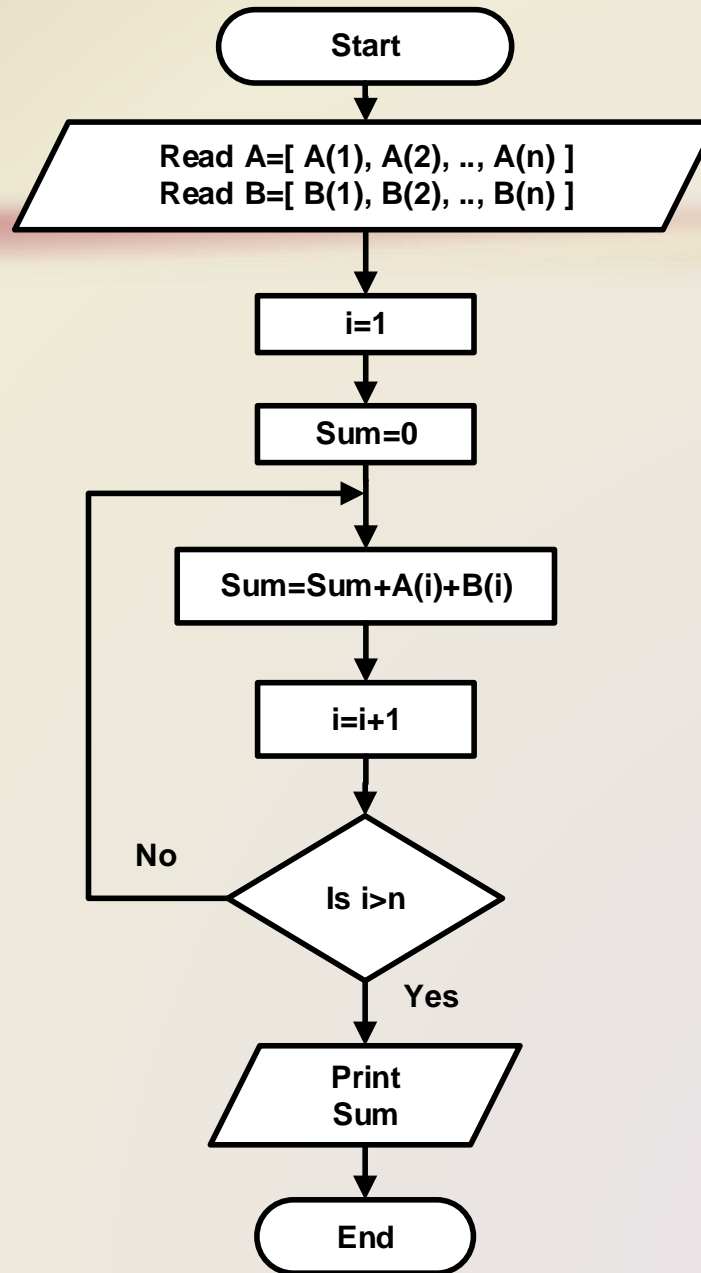


Ex A-13 Page_39

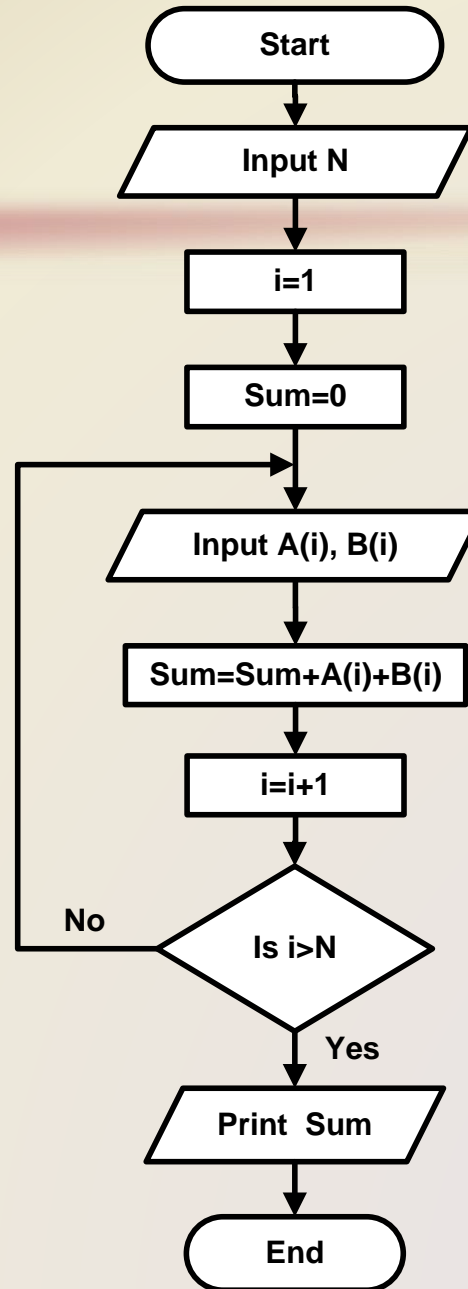
Draw a flowchart to get the summation of the matrices $A(m)$, $B(m)$ i.e.

$$X = A + B$$

Flowchart



Flowchart



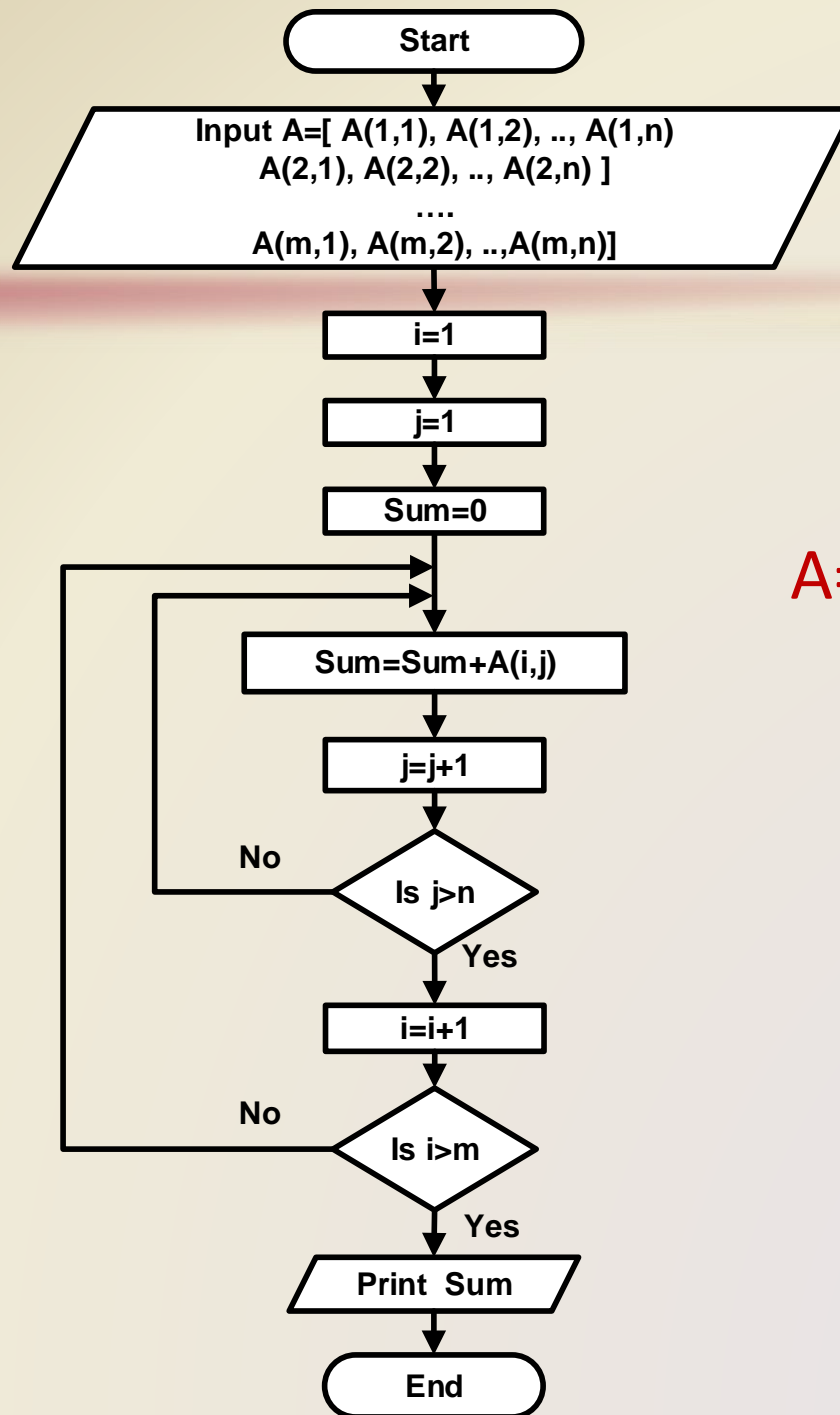
Ex A-12 Page_38

Draw a flowchart to get the summation of the elements of the matrix $A(m, n)$ i.e.

$$X = \sum_{i=1}^m \sum_{j=1}^n A(i, j)$$

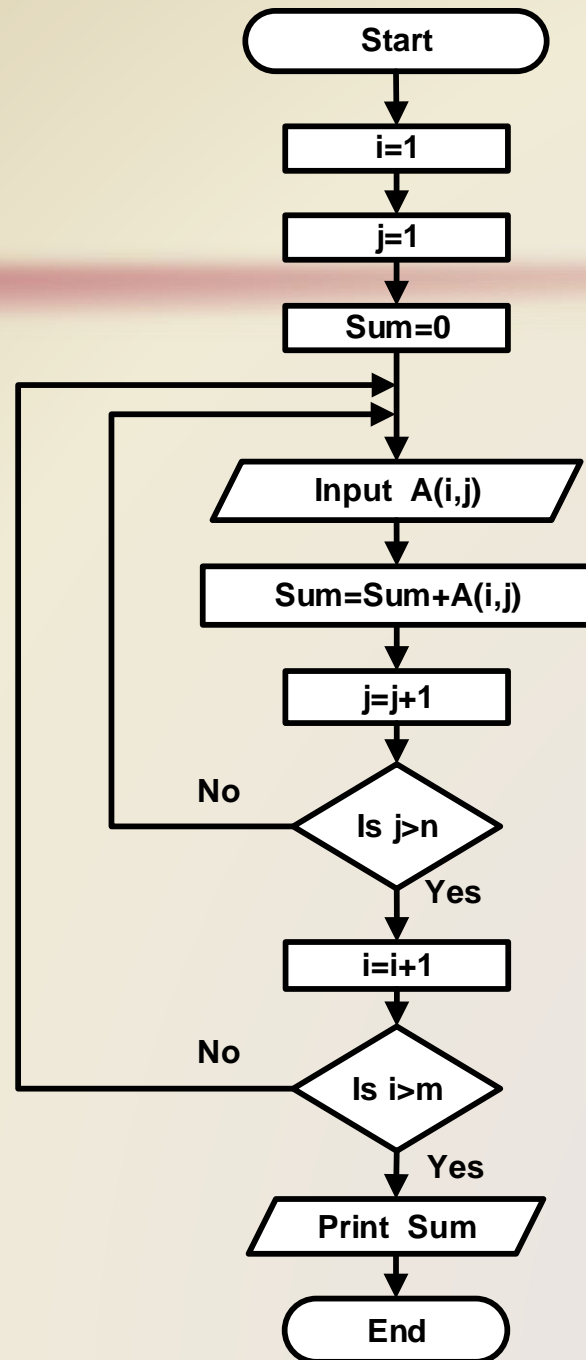
$A = [8, 2, 4, 1, 5$
 $7, 6, 0, 5, 9$
 $5, 4, 8, 1, 50]$

Flowchart



$A = [8, 2, 4, 1, 5$
 $7, 6, 0, 5, 9$
 $5, 4, 8, 1, 50]$

Flowchart



$A = [8, 2, 4, 1, 5$
 $7, 6, 0, 5, 9$
 $5, 4, 8, 1, 50]$

A) Homework questions

- 1. Draw a flowchart to find to a flowchart for computing factorial N (N!)
- 2. Draw a flowchart to obtain the summation of positive odd integer numbers from 1 to 100.
- 3. Draw a flowchart to obtain the summation of positive even integer numbers from 1 to 100.
- 4. Draw a flowchart to print the positive odd integer numbers from 1 to 100.
- 5. Draw a flowchart to print the positive even integer numbers from 1 to 100.
- 6. Draw a flowchart to obtain the summation of the following series:

$$S = 1/2^2 + 1/4^2 + 1/6^2 + 1/8^2 ++ 1/1000^2$$

- 7. Draw a flowchart to obtain the summation of the following series:

$$S = 1 + (1/2)^2 + (1/4)^2 + (1/6)^2 + (1/8)^2 ++ (1/1000)^2$$

- 8. Draw a flowchart to obtain the summation of the following series, for any value of x, up to the first 100 term:

$$S = x + (1/2x)^2 + (1/3x)^3 + (1/4x)^4 + (1/5x)^5 +$$

- 9. Draw a flowchart to compute the following summation:

$$X = 1 + 2!/(A+2!) + 3!/(A+3!) + 4!/(A+4!) + ...+N! /(A+N!)$$

where, N = 10.

A) Homework questions

10. Draw a flowchart to compute and print the following summation:

$$X = 1 + 2/2! + 3/3! + \dots + N/N!$$

11. Draw a flowchart to compute and print the following multiplication:

$$X = 1 * 1/2! * 1/3! * \dots * 1/N!$$

12. Draw a flowchart to solve the following equation:

$$Ax^2 + Bx + C = 0$$

the inputs are A, B, and C and the output is the roots.

13. Draw a flowchart to obtain Z:

$$Z = \frac{2 \cos(x) + 12y}{x^2 + 5x + 3}$$

where, $y = N!$, $x = 0.67$, and $N = 10$.

14. Draw a flowchart to compute and print the summation of the first 20 terms of the series;

$$Z = 1 + 1/(2B + \cos x) + 1/(3B + \cos x) + 1/(4B + \cos x) + \dots$$