

**Faculty of Engineering, University of Jaffna,**

**Department of Computer Engineering**

**EC4070: Data Structures and algorithms**

**Lab 09**

**Chapter 08: Dynamic Programming**

Duration: 3 Hours

Lecturer: Ms.Sujanthika M.

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### **Instructions**

- i. Submit the code files and screenshot of the outputs in a zipped folder by naming as 2022EAAA\_Lab09(AAA – Your Registration Number)
- ii. Submit your zip file before the given deadline.
- iii. Any plagiarized work will be given 0 marks.

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### **1. Minimum coin change problem**

Given a set of coins of denominations `coins[ ]` and an amount `S`, find the minimum number of coins required to make the amount `S`. If it is not possible to make the amount, return `-1`. Use dynamic approach to solve the problem

#### ***Input Format***

1. An integer `n` representing the number of coin types.
2. An array `coins[ ]` of `n` integers representing coin denominations.
3. An integer `S`, the target amount.

#### ***Output Format***

1. The minimum number of coins required to make the amount.
2. The combination of coins used (if possible).