

DP Concepts

video
30✓

&

Questions



हाइप
(Motivation)

“ Success isn't about never
failing ;
it's about rising stronger
every time .
Keep going - You are
unstoppable ”



MIK...

[cswithMIK → Twitter
Facebook
Instagram] → code story with MIK
whatsapp → code story with MIK]

Done

• 1-D based DP

• Grid based DP

Done

• String based DP

• Digit DP

• Game Strategy

We'll do:-

(i) RECURSION
+
MEMOIZATION
(Top Down)

(ii) Bottom UP .

(iii) Time & Space

DP on Grids

PART-II of Introduction

Types of Problems

in Grid DP

Unique Paths

(•) Finding count/no of unique Paths from a Source to Destination.

Example:- Counting Paths with no obstacles.

S → D

Counting Paths with restrictions
(eg. blocked cells, walls)
etc.

Minimum Path Sum

Minimum Cost Path.

(•) Finding paths with minimum sum of weights or costs

Example:- Find minimum path sum in

grid having +ve values.

↙ Find minimum path Sum in grid having -ve values

⇒ It can be "maximum" as well.

Shortest Path in a Grid ...

(*) Finding shortest Path (in terms of steps or weight) from Source to Destination.

↳ Grid with uniform weights → BFS ^{DPX}

↳ Grid with non-uniform weights → D.P or Dijkstra's ↙

Game Board ...

(*) Chess Board related problems

Example:- ↙ Minimum Knight Moves ✓✓

↙ Shortest path for King to reach

✓ Shortest path from S
a destination. ✓✓

✓ Queen related problems. ✓✓

(o) Snake & Ladder board based problems.

(✓) Matrix / Grid traversal/walk ...

Example :- ✓ Cherry pickup I/II

✓ Dungeon Game

✓ Robot walk related Problems
etc. etc...

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million (1990–1999) and the number of people in the private sector has increased by 1.7 million (1990–1999).

There is a growing emphasis on the need to improve the quality of care and services provided by the public sector. This has led to a number of initiatives, including the introduction of the Health Care Act 1999, the introduction of the NHS Constitution, and the introduction of the NHS Performance Framework. These initiatives are aimed at improving the quality of care and services provided by the public sector, and at ensuring that the public sector is able to meet the needs of the population.

The NHS is a large and complex organisation, and it is important to ensure that it is able to meet the needs of the population. This requires a number of things, including a strong leadership, a clear vision, and a commitment to excellence. The NHS is committed to these things, and it is working hard to ensure that it is able to meet the needs of the population.

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The first of these is the fact that the system is not a simple one. It is a complex system, and as such, it is not possible to understand it by looking at its parts in isolation. The system is a whole, and its behavior is determined by the interactions between its parts. This is a fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The second of these is the fact that the system is dynamic. It is not a static system, and its behavior changes over time. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The third of these is the fact that the system is interconnected. The parts of the system are not isolated from each other, and they all have an impact on the behavior of the system as a whole. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The fourth of these is the fact that the system is self-organizing. The parts of the system are able to interact with each other in a way that allows the system to adapt to changes in its environment. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The fifth of these is the fact that the system is resilient. It is able to withstand shocks and stresses, and it is able to recover from them. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The sixth of these is the fact that the system is sustainable. It is able to continue to exist and function over a long period of time. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The seventh of these is the fact that the system is equitable. It is able to provide benefits to all of its members, and it is able to do so in a way that is fair and just. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The eighth of these is the fact that the system is transparent. Its behavior is visible to all of its members, and it is able to be understood by them. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The ninth of these is the fact that the system is accountable. Its members are responsible for their actions, and they are able to be held accountable for them. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

The tenth of these is the fact that the system is inclusive. It is able to include all of its members, and it is able to do so in a way that is fair and just. This is another fundamental principle of systems thinking, and it is one that is often overlooked in traditional approaches to problem-solving.

These ten principles are the foundation of systems thinking, and they are the ones that are most often overlooked in traditional approaches to problem-solving. By understanding these principles, we can begin to understand the system as a whole, and we can begin to see how it works.

