Team id :
PNT2022TMID46283

Definition of utilization

noun. an act or instance of making practical or profitable use of something:I don't think this plan results in the best utilization of tax dollars.

In this article we discuss some simple ways in which you can **analyze the performance of your team t**o help drive productivity.

1. Track your Current Productivity and Utilization. ...
2. Analyze, Analyze, Analyze. ...
3. Improve your Planning. ...
4. Manage Customer Expectations. ...
5. Create a Productive *W*orking Environment.

Dynamic Programming

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Dynamic Programming is mainly an optimiza tion over plain recursion. Wherever we see a recursive solution that has repeated calls for

same inputs, we can optimize it using Dynamic Programming. The idea is to simply store the results of subproblems, so that we do not have to re-compute

```
int fib(int n)

    if (n  = 1)
        return n;  return fib(n-1) +
    fib(n-2):
```

Recursion : Exponential

```
        For C = 3; i = n; i++)
```

Dynamic Programming: Linear

```
        neturi [n];
```

ƏG

Dynamic Programming

Dynamic programming is a technique that breaks the problems into sub-problems, and saves the result for future purposes so that we do not need to compute the result again. The subproblems are optimized to optimize the overall solution is known as optimal substructure property. The main use of dynamic programming is to solve optimization problems. Here, optimization problems mean that when we are trying to find out the minimum or the maximum solution of a problem. The dynamic programming guarantees to find the optimal solution of a problem if the solution exists.

The definition of dynamic programming says that it is a technique for solving a complex problem by first breaking into a collection of simpler subproblems, solving each subproblem just once, and then storing their solutions to avoid repetitive computations.

optimization, also known as **mathematical programming,** collection of mathematical principles and methods used for solving quantitative problems in many disciplines, including physics, biology, engineering, economics, and business. The subject grew from a realization that quantitative problems in manifestly different disciplines have important mathematical elements in common.

Because of this commonality, many problems can be formulated and solved by using the unified set of ideas and methods that make up the field of optimization.

The historical term *mathematical programming,* broadly synonymous with *optimization,* was coined in the 1940s before *programming* became equated with *computer programming.* Mathematical programming includes the study of the mathematical structure of optimization problems, the invention of methods for solving these problems, the study of the mathematical properties of these methods, and the implementation of these methods on computers. Faster computers have greatly expanded

problems that can be solved. The development of optimization techniques has paralleled advances

Optimization problems typically have three fundamental elements. The first is a single numerical quantity, or objective maximized or minimized. The

objective may be the expected return on a stock portfolio, a company's production costs or profits, the time of arrival of a vehicle at a specified destination, or the vote share of a political candidate. The second element is a collection of variables, which are quantities whose values can be manipulated in order to optimize the objective. Examples include the quantities of stock to be bought or sold, the amounts of various resources

activities, the route to be followed by a vehicle through a traffic network, or the policies to be advocated

Intensive work began in 1947 in the U.S. Air Force. The linear programming model was proposed because it was relatively simple from a mathematical viewpoint, and yet it provided a sufficiently general and practical framework for representing interdependent activities that share scarce resources. In the linear programming model, the modeler views the system to be optimized as being made up of various activities that are assumed to require a flow of inputs (e.g., labour and raw materials) and outputs (e.g., finished goods and services) of various types proportional to the level of the activity. Activity levels are assumed to be representable by nonnegative numbers. The