INTRODUCTION TO ENGINEERING

THE MINI PROJECT ON A CASE STUDY

First, let us discuss about engineering design.

What is an engineering design?

Generally engineering is the application of the basic sciences so far, we have studied, but engineering design is a creative expression of knowledge. A design developed by an engineer, can be used by the other one; That is, it can be understood by every engineer. A design is the initiation for the preparation of a product.

Stages in Design:

There are three different stages in design.

They are (a). Thinking Stage, (b). Development Stage and (c). Employment Stage.

Now let us take an example and study on that.

**OUR CASE STUDY IS: CLOUD COMPUTING**

First, let us study about cloud computing.

**What is cloud computing?**

Cloud computing is a different kind of computing which is based on sharing computer resources other than local servers or personal devises to handle our personal information. It is cyclic process where the data is stored in a server which is know as a database, this data can be uploaded from any system and downloaded to any another system. This process is safe and secure

**History**

The cloud computing was invented in the early 1960, but it came to existence in 2006 when CEO of google MR. ERIC SCHMIDT introduced this term in a conference on 9th of august. In the earlier 1960 supercomputers launches the mainframe for the first time then from 1990 salesforce.com, after that launch of the amazon web services, then S3 launches EC 2 and finally google launches azure.

**Common characteristics of cloud computing**

1. On-demand and self-service.

2. It is rapidly elastic.

3. It is very flexible to use.

4. Easy pay and low price and sometimes some the cloud storages are free to use.

**Advantages of cloud computing**

1. We know that lower computing cost.
2. It has improved its performance.
3. Reduced software cost and now a days it is free of cost.
4. It has an instant software update which fixes bugs and makes it better.
5. We can store unlimited data using this cloud storage.
6. Device independence and we can browse it anywhere and anytime.
7. We would be free from maintenance as it an internet-based computing.

**Cloud service models**

There are 3 types of cloud service models

1. Software as a service (SaaS).

2. Platform as a service (PaaS).

3. Infrastructure as a service (IaaS).

**Description**

(1.) SaaS is a software delivery method that provides licensed multi – tenant access to the software and its functions.

Examples:

Facebook, Gmail, etc....

(2.) PaaS provides all the facilities required to support the complete life cycle for delivering web-based applications entirely from the internet

Examples:

Google, Force.com, Microsoft Azure, etc....

(3.) IaaS is the delivery technology which is used to deliver infrastructure technology as demand scalable service.

Example:

Amazon Web Services, Rack space cloud, etc.…

The cloud can be implemented in different types

(A) Private, (B) Hybrid, (C) Public, etc.

Description:

(1.) In the public cloud can be owned and managed by a service provider, it is made available to the public and large-scale industries.

(2.) In the private cloud it is operated only for an organization and may be managed by the service provider or the third-party operator and it has a limited access high security, control, privacy.

(3.) In the community cloud the infrastructure is shared by different organizations which have a shared concern. It may be managed by the Organization or the third-party operator and costs are spread to the users.

(4.) The hybrid cloud is the composition of 2 or more clouds.

**Disadvantages**

1. Downtime:

This is one of the worst disadvantages of cloud computing as we must be always connected with internet which requires some optimum speed.

1. Security and privacy:

This cloud account may be hacked by anyone.

1. Vulnerability to attack:

In cloud computing no one checks the cloud accounts as we do to maintain servers.

**Conclusion:**

In these fast-growing days cloud computing is widely used all over the world and it is one of the fast-growing network-based computing it provides huge amount of benefits to the users all around the world in different sizes. As we know that nothing is perfect in the world there are some defects in the cloud computing some of them are not good enough to use and some are excellent.

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