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**CSE 470**

**Assignment 7**

**Submitted By**

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**Section: 01**

1. **A virtual machine is a tightly isolated software container that can run its own operating systems and applications as if it is a physical computer.**

A virtual machine behaves exactly like a physical computer and contains its own virtual (ie, software-based) CPU, RAM, hard disk and network interface card (NIC).

An operating system can’t tell the difference between a virtual machine and a physical machine, nor can applications or other computers on a network. Even the virtual machine thinks it is a “real” computer. Nevertheless, a virtual machine is composed entirely of software and contains no hardware components whatsoever. As a result, virtual machines offer a number of distinct advantages over physical hardware.

**Virtual Machines Benefits**

**In general, VMware virtual machines possess four key characteristics that benefit the user:**

* Compatibility: Virtual machines are compatible with all standard x86 computers
* Isolation: Virtual machines are isolated from each other as if physically separated
* Encapsulation: Virtual machines encapsulate a complete computing environment
* Hardware independence: Virtual machines run independently of underlying hardware

With the help of virtualization technique, Virtual Machines (VM) are constructed from a Physical Machine. The intermediary application used to virtualize the resources of a host into a VM is called the Hypervisor. A VM works independently with a separate OS and necessary resources like CPU, RAM, Hard-drive and Network Bandwidth.

1. The COCOMO II model uses three techniques to justify the cost. They are:

* Object points
* Function Points
* LOC (Lines Of Codes)

Every object is classified into 3 complexity level. Such as:

* Simple
* Medium
* Difficult.

With the help of NOP (New Object Point), the amount of effort required in order to implement a project is determined.

NOP = OP\*[(100- % of Reuse)/100]

Effort = NOP/Productivity Rate

The productivity rate again depends on the Developer’s Experience Capability.