1 INTRODUCTION

1.1 Product overview

This project takes as input Physical machines and their capacities Virtual machines and their capacity requirements It computes the residual capacity in each physical machine after adding the virtual machines. The physical machines are sorted in ascending order of their residual capacity. The project provides the feature of consolidating the virtual machines in different physical machines into minimum number of physical machines. Another feature provided by this project is to shutdown a physical system by migrating the virtual machines in that physical machine into other physical machines. This project uses greedy bin packing algorithm for this purpose.

2 SPECIFIC REQUIREMENTS

2.1 External Interface Requirements

2.1.1 User Interfaces

The graphical user interface will display the set of physical machines which are 'on' in a different color from those that are 'off'. It will also show the Ids of the virtual machines that are in each physical machine. It will allow the user to

- add a virtual machine to a physical machine

- delete a virtual machine from a physical machine

- shut down a physical machine

2.1.2 Hardware Interfaces

A visual display, speakers, a keyboard, and a mouse will be utilized to support graphical user interface.

2.1.3 Software Interfaces

It runs on every system that has a C compiler so it doesn't need any other specific software from the user side. It also depends on Graphics libraries in C

2.1.4 Communication Protocols

NA

2.2 Software Product Features

2.2.1 GetDetails

It reads the input from the input file parses the input and gets the following information

- The set of physical machines and their memory and CPU capabilities

- Memory and CPU requirements of virtual machines along with their Ids.

- Information about which virtual machine resides in which physical machine.

2.2.2 Residual Capacity

It uses the information from the GetDetials and finds the Residual Capacity of every physical machine and finds which physical machine to be shut down.

2.2.3 Migrate

The victim physical machine which is chosen to shut down is processed to know if there are any virtual machines residing on that physical machine, if so they are migrated to other physical machines using the greedy bin packing algorithm. If there are no virtual machines in the victim physical machine then it is in 'off' state.

2.2.4 GUI

Graphical user Interface allow the users to

- add a virtual machine to a physical machine

- delete a virtual machine from a physical machine

- shut down the physical machine

3 SOFTWARE SYSTEM ATTRIBUTES