

CSE 410 - Computer Systems Homework 5

Assigned: Wednesday, May 12, 2004

Due: Wednesday, May 19, 2004
At the start of class

Name: _____

Student Number: _____

1. Briefly define the following terms and highlight the key differences.
 - a. program

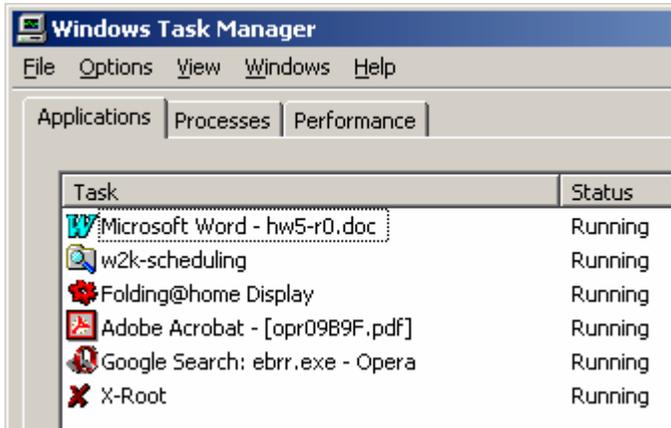
 - b. process

 - c. thread

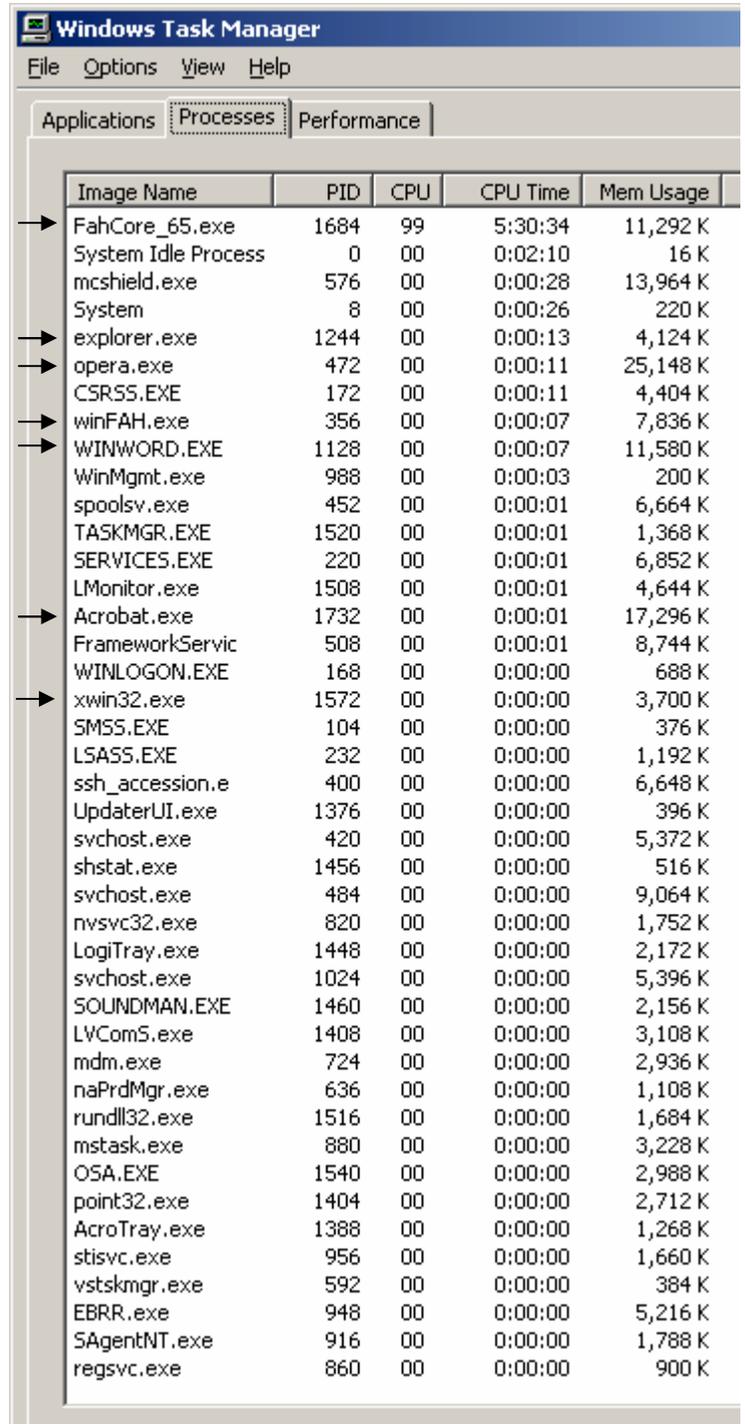
2. Of the many thread-specific variables or values that change when a process switches from one thread to another, name two of them and describe what they represent.

3. Of the many process-specific variables or values that change when the operating system switches from one process to another, name two of them and describe what they represent. Do not repeat your answer from 2.

7. In the following snapshots of the Windows Task Manager the list on the left shows the "user applications" and the list on the right shows all the running processes in the system.



The list of applications above accounts for the images (or program files) marked in the list of processes at right. Pick another one of the image names at right, and using Google or any other information resource, find out what purpose the process serves. Describe the purpose of the process you selected:



8. The top image on the next page shows various performance parameters during system activity during 1.5 minutes of recording. The heavy line at the top is the total percentage of CPU time utilized. The light line in the middle is the percentage of CPU time used by thread 2 of FahCore (basic calculation), and the light line at the bottom is the percentage of CPU time used by thread 0 of winFAH (draw image). The two FAH processes implement the Folding@Home distributed application that runs in the background on my machine only when no other process is ready to run.

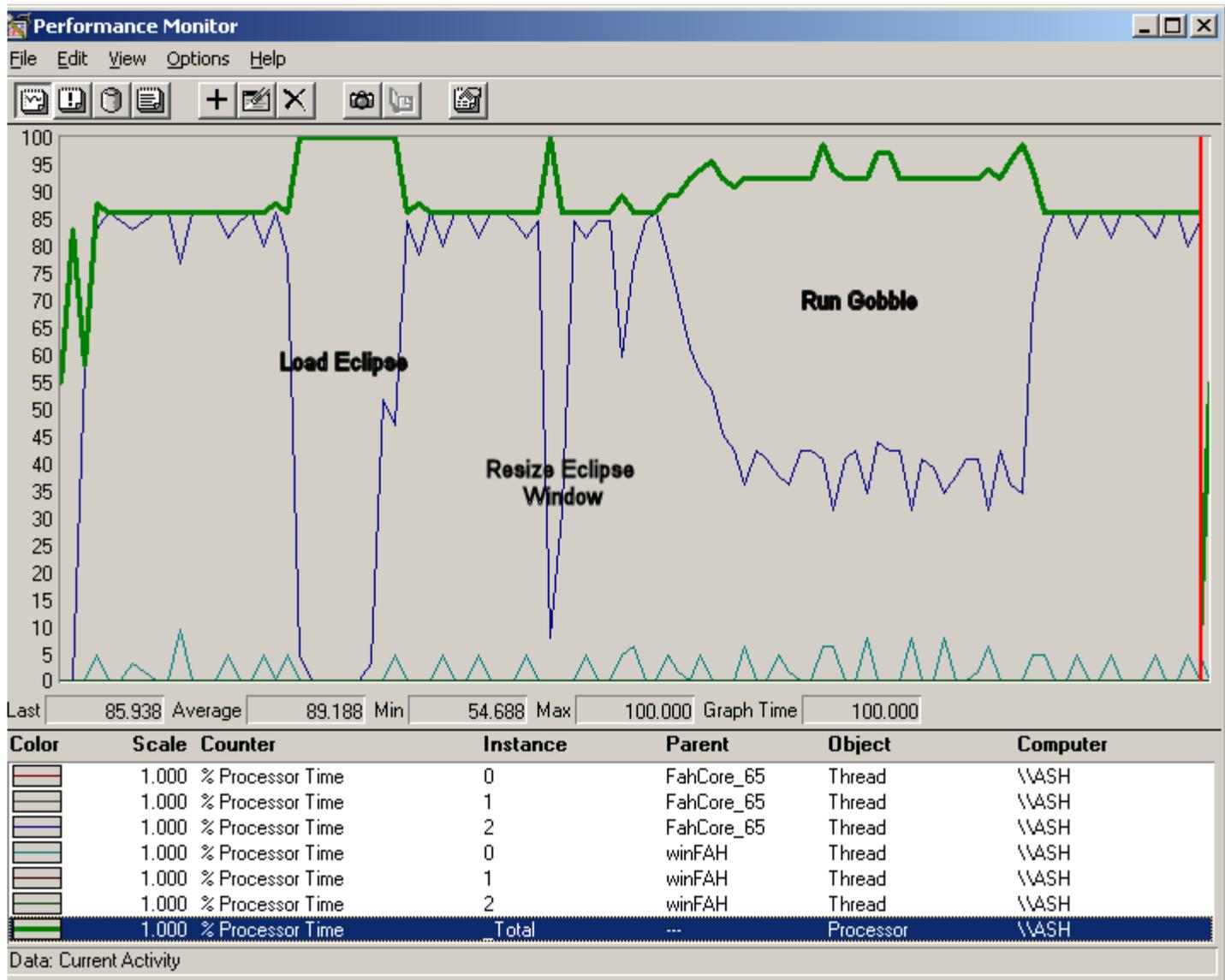
a. Is Folding@Home a multi-process application? Yes No

b. Is Folding@Home a multi-threaded application? Yes No

c. Describe one possible advantage of this design for Folding@Home.

d. Eclipse is an Integrated Development Environment that I use to develop Java programs. I started Eclipse running during the recording period. Explain what happened to each of the 3 recorded values during the time when Eclipse was loading and say why you think that happened.

e. Gobble is a simulation program that I wrote as a Java project skeleton for CSE 142. Considering the graph in the figure, do you think it likely that I can extend this simulation to do more work per frame without impacting the performance of the simulation? Justify your answer based on information in the graph.



BugWorld View (v2.1)

Java - Gobble.java - Eclipse Platform

File Edit Source Refactor Navigate Search

readme.txt | alf-stop.bat

```

/**
 * Run the Gobble program
 */
public class Gobble {
    ...

```

Folding@home Display

Folding@home

Username:
finson

Team Number:
0

Working on:
p694_L939_wt_ext

WU progress:
267/400
(66 percent)