Case Study

Mouse Mover

Description

Mouse mover is an application to move the mouse pointer. Sometimes, a computer setting will caused computer screen to be turned off if there is no interaction. This program will cause the mouse to patrol to a certain location, so then the computer always has interaction, hence the monitor won't be turned off.

R1 The screen shows instruction to choose between three options. Option one, move the mouse to only one location. Option two, patrol the mouse. And option three, to exit the program.

R2 If the user chooses option 1, then the user is asked to input a coordinat in (X,Y). After that, the mouse is moved to (X,Y) and the screen displays the instruction again.

R3 If the user chooses option 2, then the user is asked to input two coordinats in (X1,Y1) and (X2,Y2). After that, the mouse moved from (X1,Y1) to (X2,Y2) repeatedly. The mouse will stop moving when the user types any character to the screen.

Producer Consumer Problem

Description

The work focuses on Producer Consumer problem, which is also known as Bounded Buffer problem. The case study is chosen because it represents critical system (in use of synchronization and concurrency) and modeling a real world problem (used in operating system). The specifications of the system are:

R1 There is a system consists of a buffer, a Producer, and a Consumer. Buffer's capacity and the number of data that should be produced by Producer and consumed by Consumer is specified by user as N and M respectively.

R2 Producer generates data and put it to buffer for M times

R3 When producer put a data to buffer, buffer's counter increased and the buffer passed the data to a list

R4 Consumer takes data from buffer for M times

R5 When consumer took data from buffer, buffer's counter decreased the buffer took the data too from the list and passed it to Consumer

R6 Producer puts data to buffer if it is not full, otherwise it waits until the buffer is not full

R7 Consumer takes data from buffer if it is not empty, otherwise it waits until the buffer is not empty

R8 Producer and Consumer cannot access the buffer at the same time