Intoduction:

The objective of memsim is to simulate the actions a single level virtual page table using different page replacement policies. The policies used in memsim are Optimal, Least Recently Used, and Clock. Optimal looks ahead in what is called a reference string, a list of every memory access that occurs, and selects pages that are used the farthest away to remove. Least Recently Used uses a policy fitting of its name; it removes the page that was accessed furthest from the current time. The Clock policy iterates through the pages that are currently loaded in frames. If the current page is not already loaded, the policy will begin marking a use bit for replacement, If the clock reaches a frame where the page is marked as not being used it will be evicted.

Optimal Replacement Policy

Two arrays of these structures were needed to implement this policy. One array (pm[]) represents the physical memory, and its size is determined by the number of frames, decided by the user. Another array (refrence[]) is represents the reference string of every access to memory in the trace file. This list is iterated through