| Stack Memory | Heap Memory |
|---|---|

```cpp
class PageTable{
public:
        PageTable(int log, int phys);
        bool isValid(int pageNum);
        void accessPage(int pageNum);
        void storePage(int pageNum);
        void printTables();
private:
        int numStored;

        class TableEntry
        {
        public:
                int frameNumber;
                int timeStamp;
                bool valid;
                TableEntry() {
        valid = false; }
                };

        vector<TableEntry> pageMap;
        vector<int> freeFrames;
        int selectSwapPage();
};
```

```cpp
int main(){
int logSize = validInput();
int physSize = validInput();
PageTable PT(logSize, physSize);
int pageNum = validInput();
```

| pageMap | | TableEntry | valid | timeStamp | | freeFrames |
|---|---|---|---|---|---|---|
| pageNum | | | | pageMap[pageNum].timeStamp = numStored | | frame |
| pageNum | | | | | | frame |
| pageNum | | | | | | frame |
| pageNum | PageTable:: storePage(pageNum) | | | | PageTable:: freeFrames.pop_back(); | frame |
| pageNum | → | | | | → | frame |
| pageNum | | | | | if (freeFrames.empty()){ | frame |
| pageNum | | | | | selectSwapPage(); | frame |
| pageNum | | | | | else{ | frame |
| pageNum | | | | | frameNum = freeFrames.back(); | frame |
| pageNum | | | | | freeFrames.pop_back(); | frame |

```cpp
pageMap.resize(logSize);
```

```cpp
for (int i = physSize - 1; i >= 0; i--)
        freeFrames.push_back(i);
```