

Lazy Alloc, Question 2

```
class AddrSpace
{
    private:
        TranslationEntry * pageTable; // Assume linear page table translation
        unsigned int numPages; // Number of pages in the virtual address space
        bool *lazyAlloc;
};
```

Lazy Alloc, Question 3

```
for (i = thread_stack_bottom; i < thread_stack_bottom + nb_stack_pages;
     i++) {
    pageTable[i].physicalPage = 0; //frameprovider->GetEmptyFrame();
    pageTable[i].valid = FALSE;
    lazyAlloc[i] = TRUE;
}
```

Lazy Alloc, Question 4

```
void ExceptionHandler (ExceptionType which)
{
    if (which == PageFaultException) {
        int address = machine->ReadRegister (BadVAddrReg);
        int virtp = address / PageSize;
        if (currentThread->space->lazyAlloc[virtp] == FALSE)
            interrupt->Halt(); // SEG FAULT
        int phys = frameprovider->GetEmptyFrame();
        currentThread->space->pageTable[virtp].physicalPage = phys;
        currentThread->space->pageTable[virtp].valid = TRUE;
    }
}
```