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Ex-2-3

1/25/17

(a) Assuming that we have 25 allowable characters, 80 characters per line, 40 lines per page, and 410 pages per book, then if the choice of characters is independent, then the total number of characters in the book is 80\*40\*410=1312000. Thus, the number of different books with our given character set is 25\*\*1312000. If you try to compute this in the Idle shell, then the shell tries to compute this indefinitely (until I aborted by interrupting the execution).

From the python Idle shell:

>>> 80\*40\*410

1312000

(b) In each gallery, there are 6 walls with 5 shelves with 35 books per shelf. Thus, per gallery, there are 6\*5\*35=1050 books per gallery. In order to figure out if there how many books will inhibit the unfilled gallery (if all other galleries are filled), we can check the remainder when we divide the number of books by the number of books per gallery. We have (25\*\*1312000)%1050=25. Thus, the unfilled gallery will have 25 books in it. If we try to find the number of filled galleries using //, then the shell continues trying to execute until it eventually gives up and crashes or unless I abort by interrupting the executioin.

From the python Idle shell:

>>> 5\*6\*35

1050

>>> (25\*\*1312000)%1050

25