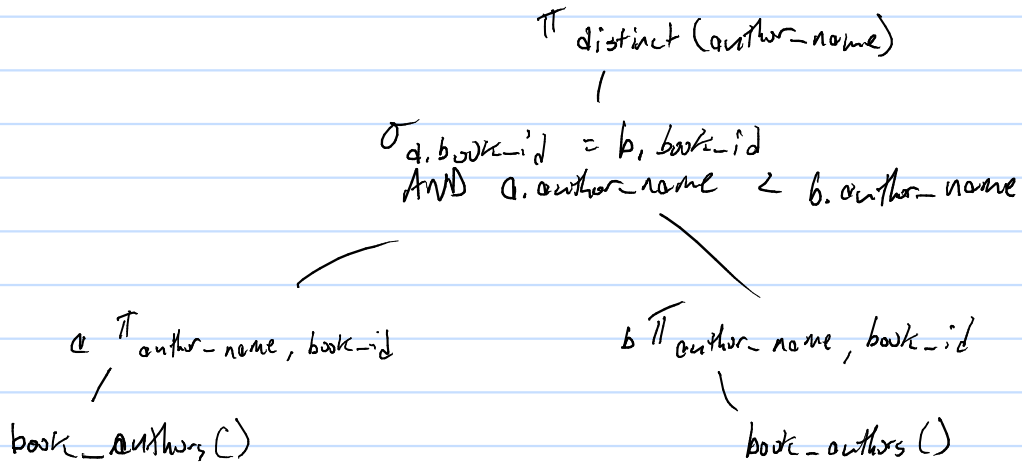
2bi)

$a \leftarrow \Pi_{author\_name,\ book\_id}(Book\_Authors)$

$b \leftarrow \Pi_{author\_name,\ book\_id}(Book\_Authors)$

$Result \leftarrow \Pi_{distinct(author\_name)}(\sigma_{a.book\_id = b.book\_id\ AND\ a.author\_name < b.author\_name}(book\_authors))$

2ci)



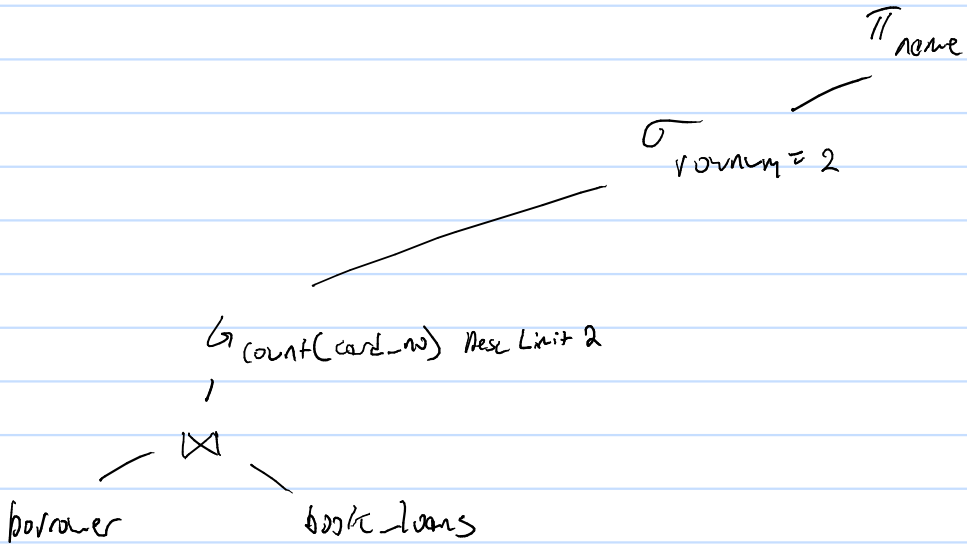
2bi)

$Desc\_Card \leftarrow \mathcal{G}_{count(card\_no)\ desc\ limit\ 2}(borrower \bowtie book\_loans)$

$output \leftarrow \sigma_{rownum = 2}(Desc\_Card)$

$Result \leftarrow \Pi_{name}(output)$

2cii)



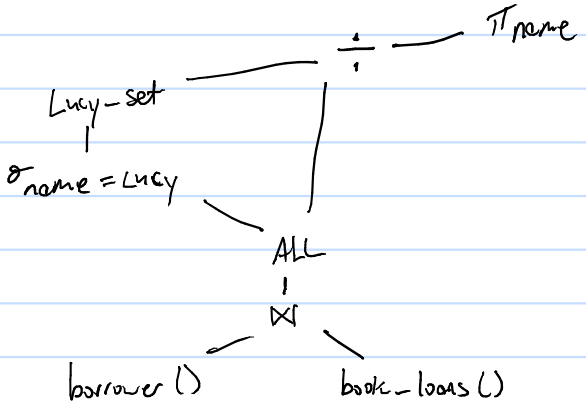
2 b iii)

$Lucy\_set \leftarrow \sigma_{name = 'Lucy'}(book\_loans \bowtie borrower)$

$all \leftarrow \sigma (book\_loans \bowtie borrower)$

$\pi_{name}(all \div Lucy\_set)$

2c iii)



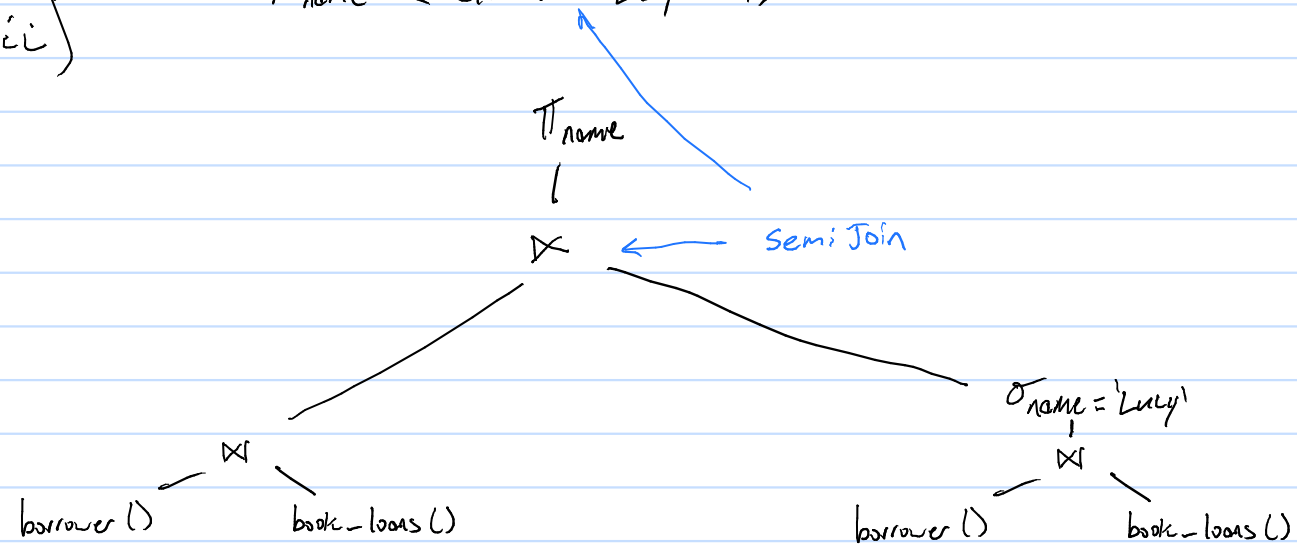
2b iii)

$Lucy\_set \leftarrow \sigma_{name = 'Lucy'}(book\_loans \bowtie borrower)$

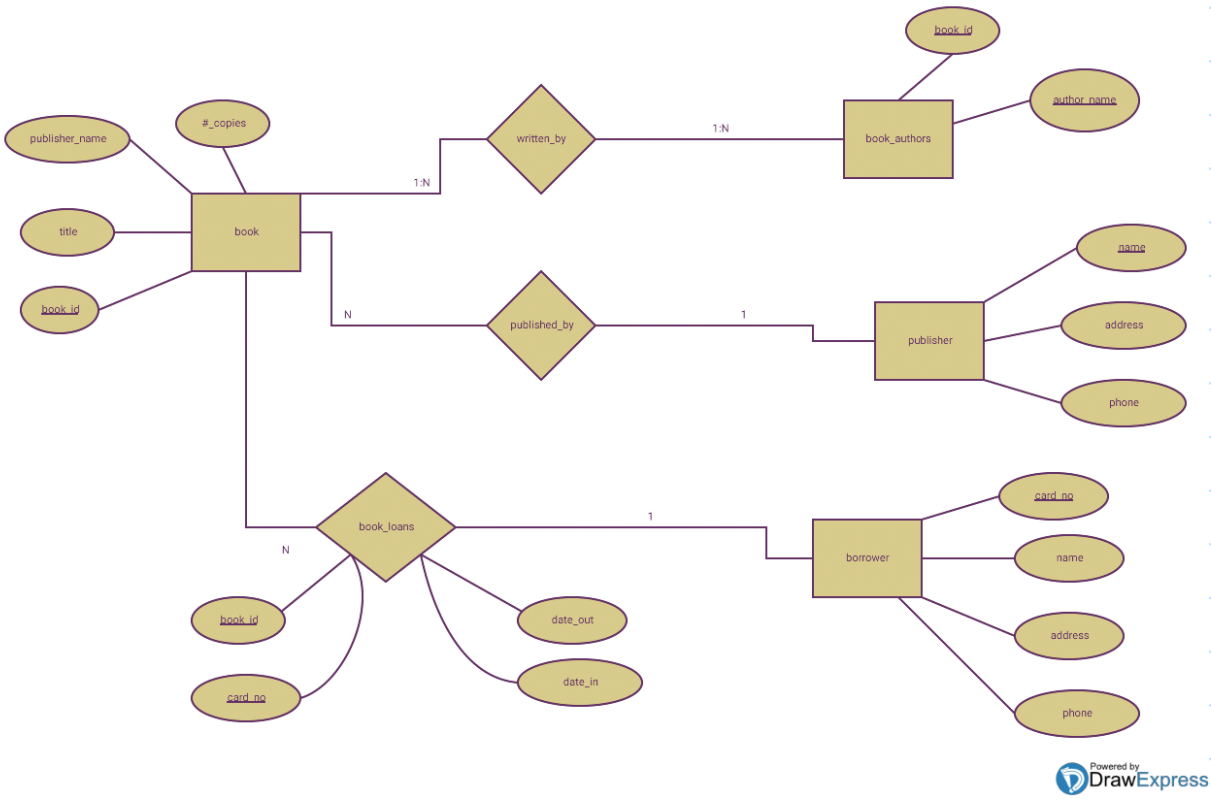
$all \leftarrow \sigma (book\_loans \bowtie borrower)$

$\pi_{name}(all \ltimes Lucy\_set)$

2c iii)



3)



Activity 4)

7.32 :