--Q1

--no index very slow excecution time

--Planning Time: 0.283 ms

--Execution Time: 26.648 ms

--btree

--add btree index

--btree index greatly speeds up execution at the cost of 13MB extra space

--Planning Time: 0.291 ms

--Execution Time: 15.629 ms

--13MB

--brin

--brin index also greatly increases the spped

--much lower cost of space at 24KB

--this method is preferred as the trade-off is lower

--brin index are more efficient for numerical data such as dates

--Planning Time: 0.449 ms

--Execution Time: 15.817 ms

--24KB

--Q2

--no index

--select all messages that include the term "aeb"

--Planning Time: 0.290 ms

--Execution Time: 386.238 ms

--gin

--add gin index to message column in usermessages table

-- this speeds up the search greatly

-- gin is very good for text based searches

--down side is that it takes a long time to index a large database

--it also takes up a very large amount of space 115MB in this case

--Planning Time: 0.178 ms

--Execution Time: 42.596 ms

--115MB

--btree

--add btree index to same column

-- doesnt take as long as gin

--however does not have an appreciable difference in speed

--also takes up space 56MB

-- in this case gin would be the best indexing method

--Planning Time: 0.867 ms

--Execution Time: 440.038 ms

--56MB