Question 3

First index

CREATE INDEX ProductPrice ON product(price);

This index allow our application to search all products that have their prices below to a given price much faster. For example, if some one ask to find all products that have price below or equal to 500.00$ for some reason, the database can use this index to findout the rightermost leaf page on the B+ tree and output all the corresponding data. In general, if there is no such index, the database needs to go through all data pages, but by having this index, the database will need to go through in average half of the total data pages instead.

Second index

CREATE INDEX ReleaseDate ON release(release\_date);

This index allow our application to search all products that have their release date before a given data much faster. For example, if some one ask to find all products that have release before 2018-01-01, the database can use this index to findout the rightermost leaf page on the B+ tree and output all the corresponding data. In general, if there is no such index, the database needs to go through all data pages, but by having this index, the database will need to go through in average half of the total data pages instead.