Homework 8:

* view vs stored procedure
* view vs material view
* b v.s. b+ tree

**View vs. stored procedure**

A view represents a virtual table.

It can only contain one single SELECT query but cannot accept parameters. A view can be used as a building block in a larger query. Creating a view will not perform modifications to any table.

A stored procedure is an encapsulation of logic that can be called from an application. It uses parameters to do a function, for example, updating and inserting data, or returning single values or data sets.

Stored procedures require an EXECUTE statement and a passed in parameter value to be tested and run:

EXECUTE spAccount ‘James’;

It can contain several statements, loops, IF ELSE, etc. Also, it accepts parameters. A stored procedure cannot be used as a building block in a larger query. It can perform modifications to one or several tables.

**View vs. materialized view**

Both view and materialized view are both logical virtual copy of data. However, the result of a view is not stored anywhere, only the query expression is stored; but the result of a materialized view is stored in the table or disk.

The query expression of view will be executed every time when the user is trying to fetch data from it. Therefore, it can always get the latest value. The materialized view result will not be updated since it has been stored.

**B tree vs. b+ tree**

B-tree is a self-balancing tree. Its nodes are sorted in in-order traversal. There can be multiple children for a node. Height is log MN (M is the order of tree and N is the number of nodes). The height is adjusted automatically at each update.

B+ tree stores data points only at the leaf nodes of the tree. The leaf nodes are linked to provide ordered access to the records. The leaf nodes form the first level of the index, while the internal nodes form the other levels of a multilevel index.