Week 12: Practice Problems
Topic: Query execution plans with single-index access path

Learning objective: Practice writing query execution plans utilizing indexes given SQL queries.

Instruction: Submit your attempt to answer questions 1.a-1.e for your class participation credits.

Question 1.

```
create table food (fid int, fname varchar(45) not null unique,
 primary key(fid));

create table ingredient (iid int, iname varchar(45) not null unique,
 primary key(iid)
 );

create table recipe (fid int, iid int, amount varchar(10),
  primary key(fid,iid),
  foreign key(fid) references food(fid),
  foreign key(iid) references ingredient(iid) );
```

Assume that the relational DBMS that stores the above relations automatically creates an index for the primary key, each foreign key that is not the first attribute of the primary key, and each unique attribute.

a) What are available indexes?

For each SQL query below, draw query execution plans with single-index access path.

b) select fname from food where fid=2;

c) select iname from ingredient where iname= 'pork';

d) select iname from ingredient where upper(iname)= 'PORK';

e) select * from recipe where fid=2 and iid >23;