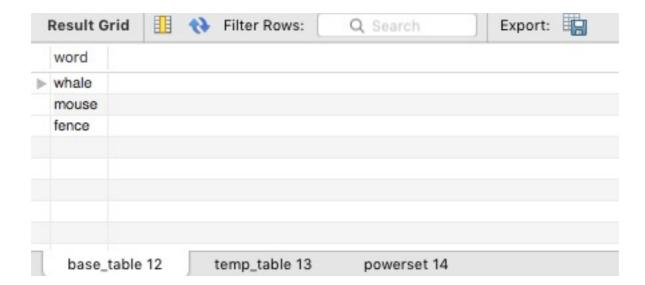
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Here is the base table:

```
    DROP TABLE IF EXISTS 'base_table';
    CREATE TABLE 'base_table' (
        'word' varchar(32) NOT NULL
        ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
    insert into base_table (word) values ('whale');
    insert into base_table (word) values ('mouse');
    insert into base_table (word) values ('fence');
    select * from base_table;
```



Here is the DDL and final result for powerset table:

```
DROP TABLE IF EXISTS `powerset`;

CREATE TABLE `powerset` (
  `word1` varchar(32),
  `word2` varchar(32),
  `word3` varchar(32)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

	word1	word2	word3
Þ	NULL	NULL	NULL
	whale	NULL	NULL
	mouse	NULL	NULL
	fence	NULL	NULL
	whale	mouse	NULL
	whale	fence	NULL
	mouse	fence	NULL
	whale	mouse	fence

## Here is the set of procedures:

```
DROP TABLE IF EXISTS 'temp_table';
CREATE TABLE temp_table
 AS select word1, word2, word3 from ((
    select A.word as word1, B.word as word2, C.word as word3
    from base_table as A ,base_table as B, base_table as C
where A.word != B.word and A.word != C.word and B.word != C.word) as t)
    order by rand() limit 1;
select * from temp_table;
INSERT INTO powerset (word1,word2,word3) VALUES (NULL,NULL,NULL);
INSERT INTO powerset (word1, word2, word3)
    select A.word as word1, null as word2, null as word3
from base_table as A left join base_table as B on A.word = B.word;
INSERT INTO powerset (word1,word2,word3)
    select word1, word2, null word3 from temp_table;
INSERT INTO powerset (word1,word2,word3)
    select word1, word3 as word2, null as word3 from temp_table;
INSERT INTO powerset (word1,word2,word3)
    select word2 as word1, word3 as word2, null as word3 from temp_table;
INSERT INTO powerset (word1,word2,word3)
    select word1, word2, word3 from temp_table;
select * from powerset;
```

First, we create a temp table. The queries will generate six rows of combination of those 3 words. By adding the condition order by rand() limit 1, we randomly select a row as temp\_table. Note that each row is a unique combination of three words, they are just different in orders.

Here is what we have after creating temp\_table:

	base_table 19			temp_table 20	powerset 21
Þ	mouse	fence	whale		
		word2			

Then, we add each types of data into the powerset table: all null, one unique word with two null, two unique words combination with one null and three unique word combination.

The all codes for this extra credit assignment is attached below

```
Appendix:
```

```
DROP TABLE IF EXISTS 'base_table';

CREATE TABLE 'base_table' (
    'word' varchar(32) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

insert into base_table (word) values ('whale');
insert into base_table (word) values ('mouse');
insert into base_table (word) values ('fence');

select * from base_table;

DROP TABLE IF EXISTS 'powerset';

CREATE TABLE 'powerset' (
    'word1' varchar(32),
    'word2' varchar(32),
```

```
'word3' varchar(32)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
DROP TABLE IF EXISTS 'temp_table';
CREATE TABLE temp_table
AS select word1, word2, word3 from ((
     select A.word as word1, B.word as word2, C.word as word3
     from base_table as A ,base_table as B, base_table as C
  where A.word != B.word and A.word != C.word and B.word != C.word) as
t)
  order by rand() limit 1;
select * from temp_table;
INSERT INTO powerset (word1,word2,word3) VALUES (NULL,NULL,NULL);
INSERT INTO powerset (word1,word2,word3)
     select A.word as word1, null as word2, null as word3
     from base table as A left join base table as B on A.word = B.word;
INSERT INTO powerset (word1,word2,word3)
     select word1, word2, null word3 from temp table;
INSERT INTO powerset (word1,word2,word3)
     select word1, word3 as word2, null as word3 from temp_table;
INSERT INTO powerset (word1,word2,word3)
     select word2 as word1,word3 as word2,null as word3 from
temp_table;
INSERT INTO powerset (word1,word2,word3)
     select word1,word2,word3 from temp_table;
select * from powerset;
```