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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;`

Result Grid			Filter Rows:	Search	Export:
	word				
▶	whale				
	mouse				
	fence				
	base_table 12	temp_table 13	powerset 14		

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	
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.

	word1	word2	word3
▶	mouse	fence	whale

base_table 19

temp_table 20

powerset 21

The all codes for this extra credit assignment is attached below

```
DROP TABLE IF EXISTS `base_table`;
```

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

```
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;
```