



Testing User Account Schema Behavior

Test #1 (Testing the behavior of the auto increment)

The user account id attribute should increase by one every time we insert a new record in the schema.

So, we inserted some arbitrary test cases to illustrate the schema after insertion.

Code

```
3      -- Test #1
4  ✓    insert into useraccount (ssn)
5      values ('xx-xxx-xxx-xxx-xyy'),
6          ('xx-xxx-xxx-xxx-xyy'),
7          ('xx-xxx-xxx-xxx-xxz'),
8          ('xx-xxx-xxx-xxx-xyx'),
9          ('xx-xxx-xxx-xxx-xzx'),
10         ('xx-xxx-xxx-xxx-xxx');
```

Output

	🔍 userAccountId ▾	🔍 ssn ▾
1	1	xx-xxx-xxx-xxx-xyy
2	2	xx-xxx-xxx-xxx-xyy
3	3	xx-xxx-xxx-xxx-xxz
4	4	xx-xxx-xxx-xxx-xyx
5	5	xx-xxx-xxx-xxx-xzx
6	6	xx-xxx-xxx-xxx-xxx



Test #2 (Testing that the primary keys should be distinct)

If we insert a record with a primary key that is already in the schema the record should release an error.

From the previous test we have a record with SSN: xx-xxx-xxx-xxx-xxx.

Code

```
3      -- Test #1
4      insert into useraccount (ssn)
5      values ('xx-xxx-xxx-xxx-xyy'),
6              ('xx-xxx-xxx-xxx-xyy'),
7              ('xx-xxx-xxx-xxx-xxz'),
8              ('xx-xxx-xxx-xxx-xyx'),
9              ('xx-xxx-xxx-xxx-xzx'),
10             ('xx-xxx-xxx-xxx-xxx');
11
12      -- Test #2
13      ! insert into useraccount (ssn)
14      values ('xx-xxx-xxx-xxx-xxx');
```

Error

```
central-student-hub> insert into useraccount (ssn)
                        values ('xx-xxx-xxx-xxx-xxx')
[2023-11-20 22:08:51] [23000][1062] Duplicate entry 'xx-xxx-xxx-xxx-xxx' for key 'ssn'
[2023-11-20 22:08:51] [23000][1062] Duplicate entry 'xx-xxx-xxx-xxx-xxx' for key 'ssn'
```

Test #3 (Testing that the SSN cannot be Null)

Code

```
16      -- Test #3
17      ! insert into useraccount (ssn)
18      values (null);
```

Error

```
central-student-hub> insert into useraccount (ssn)
                        values (null)
[2023-11-20 22:12:01] [23000][1048] Column 'ssn' cannot be null
[2023-11-20 22:12:01] [23000][1048] Column 'ssn' cannot be null
```



Test #4 (Testing that all attribute other than user Account Id, SSN will be null by default)

Code

```
20      -- Test #4
21 ✓    insert into useraccount (ssn)
22      values ('xx-xxx-xxx-xyy-zzz'),
23           ('xx-xxx-xxx-xxz-zzz');
```

Output

	userAccountId	ssn	userType	email	passwordHash	passwordSalt	passwordDate
1	1	xx-xxx-xxx-xyy	<null>	<null>	<null>	<null>	<null>
2	2	xx-xxx-xxx-xyy	<null>	<null>	<null>	<null>	<null>
3	3	xx-xxx-xxx-xxz	<null>	<null>	<null>	<null>	<null>
4	4	xx-xxx-xxx-xyx	<null>	<null>	<null>	<null>	<null>
5	5	xx-xxx-xxx-xxz	<null>	<null>	<null>	<null>	<null>
6	6	xx-xxx-xxx-xxx	<null>	<null>	<null>	<null>	<null>
7	8	xx-xxx-xxx-xyy-zzz	<null>	<null>	<null>	<null>	<null>
8	9	xx-xxx-xxx-xxz-zzz	<null>	<null>	<null>	<null>	<null>

Test #5 (Testing insert function)

Code

```
26      -- Test #5
27 ✓    insert into useraccount (ssn, userType, email, passwordHash, passwordSalt, passwordDate)
28      values ('yy-xxx-xxx-xxx', 'student', 'std1@alex.edu.eg', '123456789', '123456789', '2020-01-01'),
29           ('yy-xxx-xxx-xyy', 'admin', 'admin@alex.edu.eg', '123456789', '123456789', '2020-01-01'),
30           ('yy-xxx-xxx-xxz', 'teaching staff', 'tc1@alex.edu.eg', '123456789', '123456789', '2020-01-01');
```

Output

9	10	yy-xxx-xxx-xxx	student	std1@alex.e...	123456789	123456789	2020-01-01
10	11	yy-xxx-xxx-xyy	admin	admin@alex...	123456789	123456789	2020-01-01
11	12	yy-xxx-xxx-xxz	teaching staff	tc1@alex.ed...	123456789	123456789	2020-01-01



Test #6 (Testing delete function)

Code

```
32 -- Test #6
33 ✓ delete from useraccount where ssn in ('xx-xxx-xxx-xxx-xyy', 'xx-xxx-xxx-xxx-xyy',
34 'xx-xxx-xxx-xxx-xxz', 'xx-xxx-xxx-xxx-xyx',
35 'xx-xxx-xxx-xxx-xxz', 'xx-xxx-xxx-xxx-xxx');
```

Before deletion

	userAccountId	ssn	userType	email	passwordHash	passwordSalt	passwordDate
1	1	xx-xxx-xxx-xxx-xyy	<null>	<null>	<null>	<null>	<null>
2	2	xx-xxx-xxx-xxx-xyy	<null>	<null>	<null>	<null>	<null>
3	3	xx-xxx-xxx-xxx-xxz	<null>	<null>	<null>	<null>	<null>
4	4	xx-xxx-xxx-xxx-xyx	<null>	<null>	<null>	<null>	<null>
5	5	xx-xxx-xxx-xxx-xxz	<null>	<null>	<null>	<null>	<null>
6	6	xx-xxx-xxx-xxx-xxx	<null>	<null>	<null>	<null>	<null>
7	8	xx-xxx-xxx-xyy-zzz	<null>	<null>	<null>	<null>	<null>
8	9	xx-xxx-xxx-xxz-zzz	<null>	<null>	<null>	<null>	<null>
9	10	yy-xxx-xxx-xxx-xxx	student	std1@alex.e...	123456789	123456789	2020-01-01
10	11	yy-xxx-xxx-xxx-xyy	admin	admin@alex...	123456789	123456789	2020-01-01
11	12	yy-xxx-xxx-xxx-xxz	teaching staff	tc1@alex.ed...	123456789	123456789	2020-01-01

After deletion

	userAccountId	ssn	userType	email	passwordHash	passwordSalt	passwordDate
1	8	xx-xxx-xxx-xyy-zzz	<null>	<null>	<null>	<null>	<null>
2	9	xx-xxx-xxx-xxz-zzz	<null>	<null>	<null>	<null>	<null>
3	10	yy-xxx-xxx-xxx-xxx	student	std1@alex.e...	123456789	123456789	2020-01-01
4	11	yy-xxx-xxx-xxx-xyy	admin	admin@alex...	123456789	123456789	2020-01-01
5	12	yy-xxx-xxx-xxx-xxz	teaching staff	tc1@alex.ed...	123456789	123456789	2020-01-01

Test #7 (Testing update function)

Code

```
37 -- Test #7
38 ✓ update useraccount set userType = 'student' where userAccountId in (8, 9);
39 ✓ update useraccount set passwordDate = '2020-01-01' where ssn in ('xx-xxx-xxx-xyy-zzz', 'xx-xxx-xxx-xxz-zzz');
```



Before update

	🔗 userAccountId ↕	🔗 ssn ↕	🔗 userType ↕	🔗 email ↕	🔗 passwordHash ↕	🔗 passwordSalt ↕	🔗 passwordDate ↕
1	8	xx-xxx-xxx-xy-zzz	<null>	<null>	<null>	<null>	<null>
2	9	xx-xxx-xxx-xz-zzz	<null>	<null>	<null>	<null>	<null>

After update

	🔗 userAccountId ↕	🔗 ssn ↕	🔗 userType ↕	🔗 email ↕	🔗 passwordHash ↕	🔗 passwordSalt ↕	🔗 passwordDate ↕
1	8	xx-xxx-xxx-xy-zzz	student	<null>	<null>	<null>	2020-01-01
2	9	xx-xxx-xxx-xz-zzz	student	<null>	<null>	<null>	2020-01-01