Short Note for Lecture 2

Collection types 2

1. V array
2. Nested tables

1. V arrays

We use V arrays to store multiple data in same datatype in a single column.

Create Varray

```
CREATE TYPE price_arr AS VARRAY(10) of NUMBER(12,2)
/
```

Use Varray

```
CREATE TABLE pricelist
(
    Pno int,
    Price price_arr
)
/
```

Insert data into Varray

```
Insert into pricelist value(1,price_arr(2.50,3.75,4.25))
```

To retrieve data from this varray as a table we need to convert varray to table.

Convert varray to table

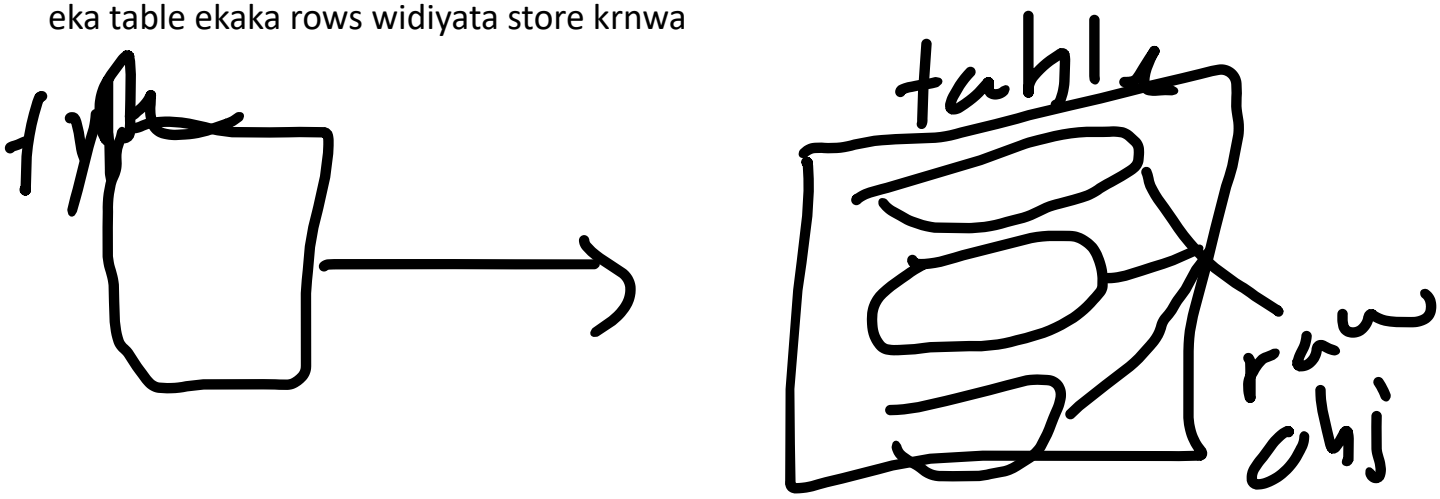
Select pno, s.COLUMN_VALUE price (COLUMN_VALUE kiyane keyword ekak)

From pricelist p, TABLE(p.prices) s (pricelist eke prices kiyanna eka table ekak krala s kiyala ganna. We use table function for this**)**

In object oriented, we can make columns as 2 ways

1. Raw objects
2. Column objects

Raw objects waladi api type eka hadnwa. Ita passe eka use krala object hadala eka table ekaka rows widiyata store krnwa




```
create type emp_t as object(
                empno char(10),
                empname char(10),

        )
        /

        Create table emp of emp_t(
                Primary key(empno)
        )
        /
```

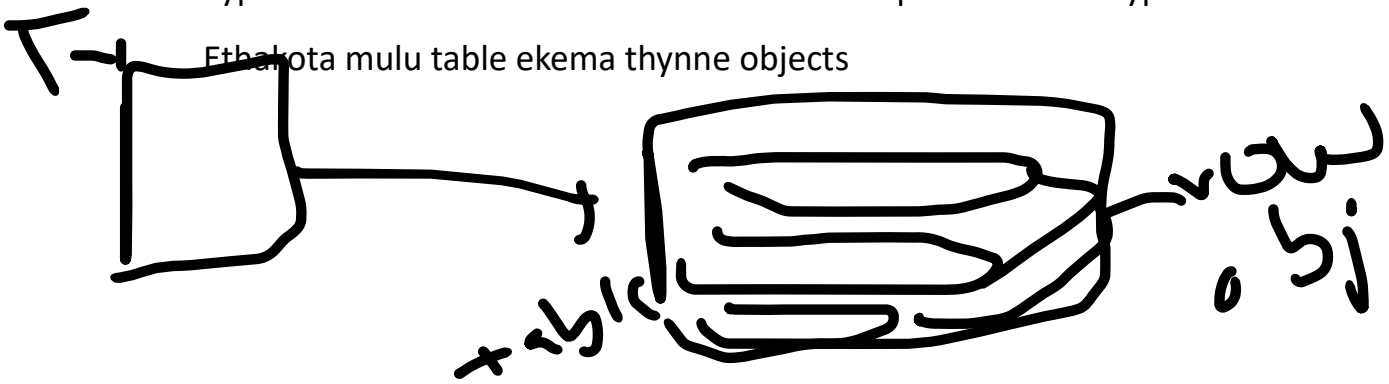
Coumn obj waladi api normal table ekak hdanwa Issara wage. No objects

```
Create table emp(
                Name char(5)
        )
        /
```

Row obj

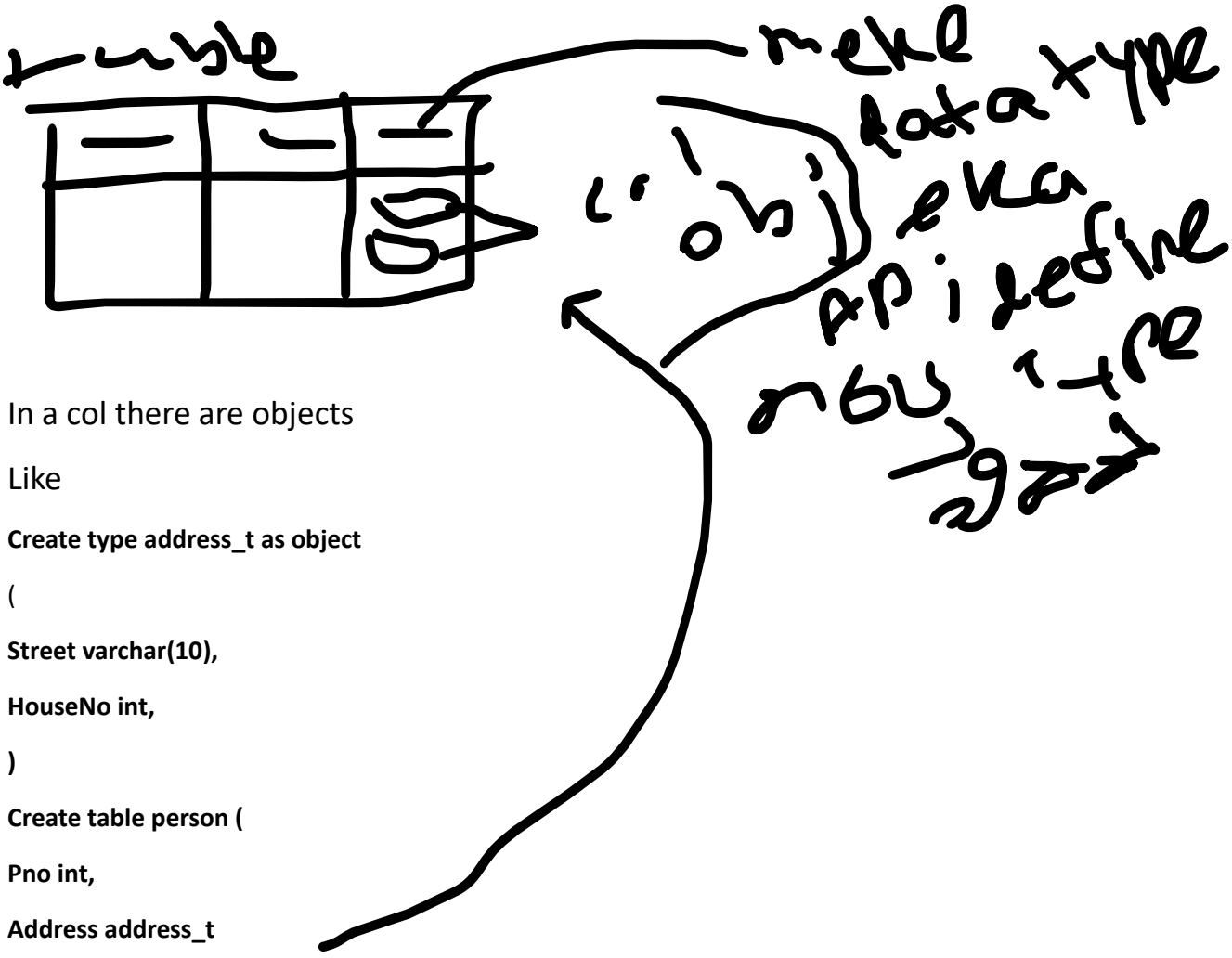
Type ekak hadala eken table ekak haduwoth api data danne type ekata.

Ethakota mulu table ekema thynne objects



Col obj

Table ekak haduwoth api data danne normal widiyta table ekata.
Ethakota one nam column ekak athule apita object hdanna puluwan



In a col there are objects

Like

Create type address_t as object

(

Street varchar(10),

HouseNo int,

)

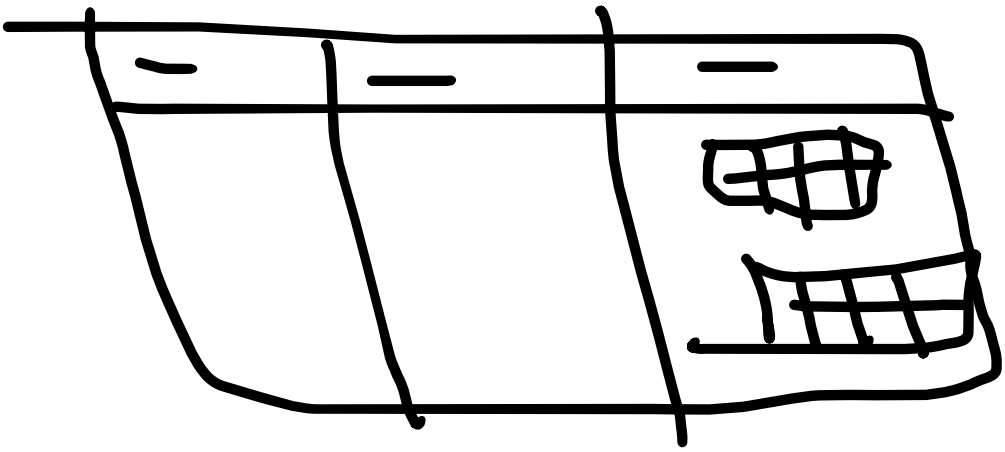
Create table person (

Pno int,

Address address_t

)

2. Nested Tables



Ekkenekta adalawa eyage mokak hari ekak gana data godak thiyaganna nam apita thawa table ekak one. Eka nisa ekata nested table kiynwa.

Employeege project wala wisthara thiyanna one nam api employee athule project kiyala wenama table ekak hdnwa. Object hadala krnna ba. Object ekakta puluwan eka data ekai thiyagnna.E1 ge eka project ekak thiyanna nam raw object ok. But project godak thibboth e row object eke eka col ekak ekak nested table ekak krnna one.

Type ekak hada gnnwa ape project tika store karaganna

```
CREATE TYPE project_typee as OBJECT
(
projectNo NUMBER,
projName varchar(20)
)
/
```

Ita passe eken container ekak hdagnnwa ape projects dala thiyanna

```
CREATE TYPE project_list AS TABLE OF project_type
/
```

Dan thamai hari type eka hadagnne. Empge details danna. Mekn thama object hdanne employeege

CREATE TYPE employee_type as OBJECT

(

Eno NUMBER,

Projects project_list

)

/

Meken thama emp table eka athulata ara api hadagatha table eka nested table ekak widiyata daganne.emp table eka haddima nested table ekath denna one

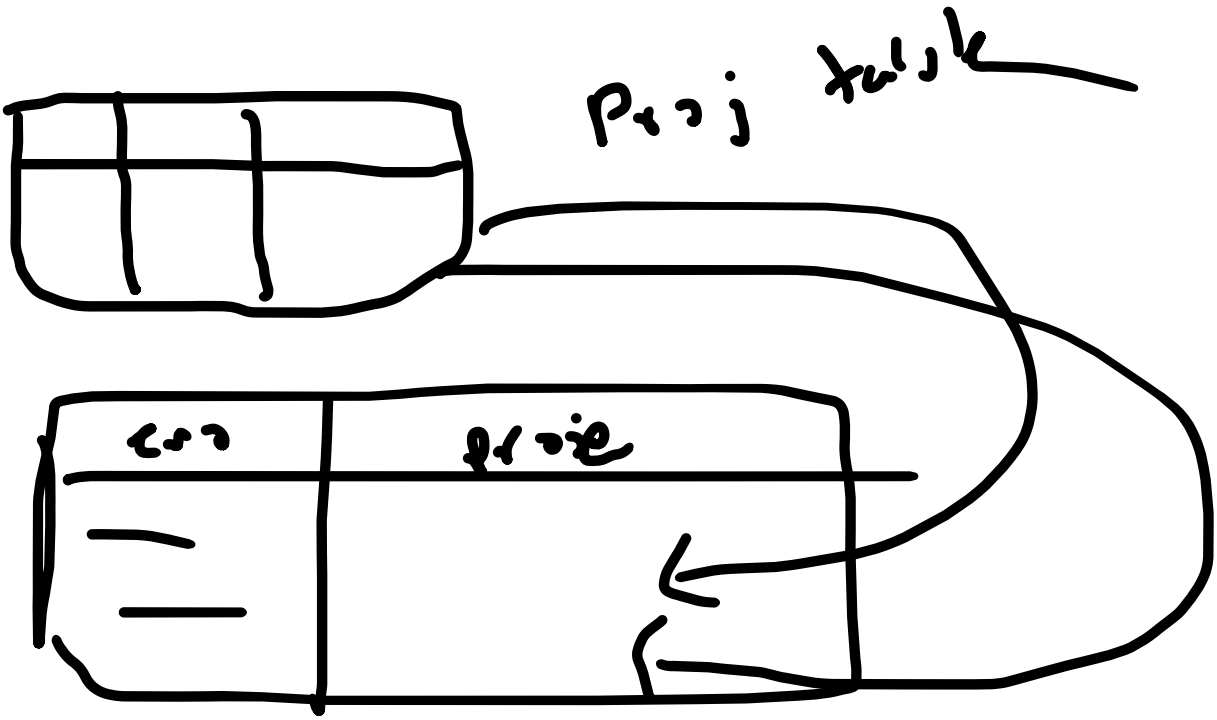
CREATE TABLE employes of employee_type (Eno PRIMARY KEY)

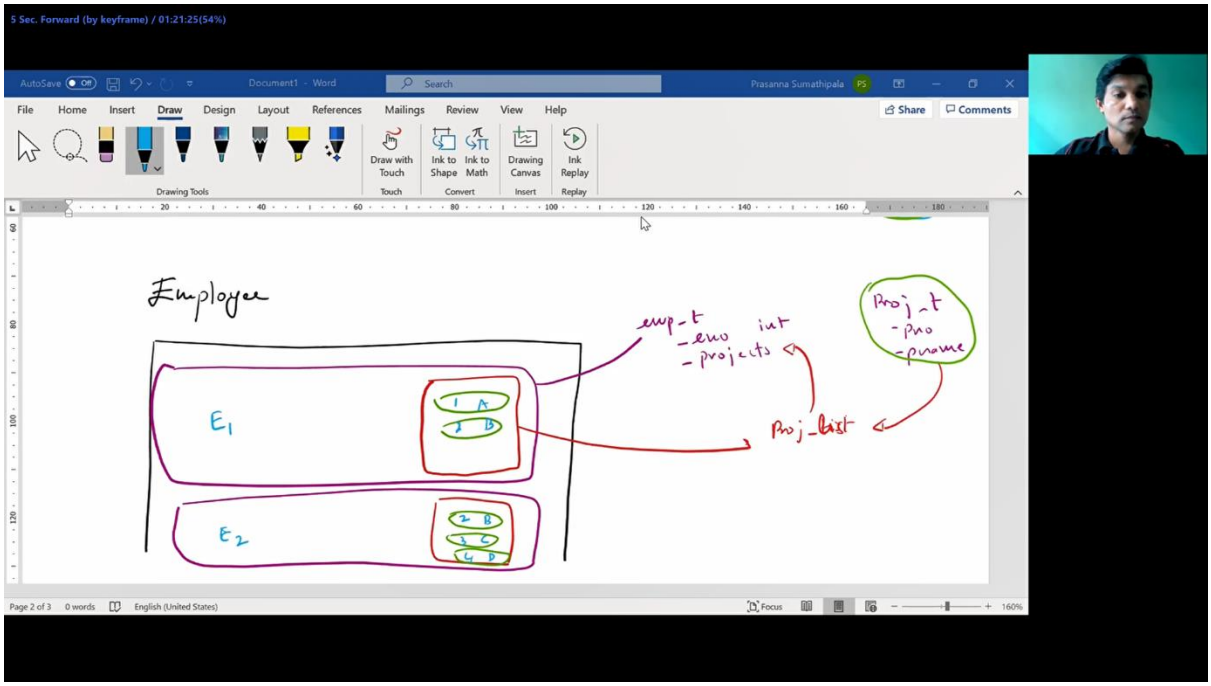
NESTED TABLE projects STORE AS employees_proj_table

/

Mekedi nested table ekanama ganne employees_project_table kiyala

Eka store wene projects kiyan col eka yatathe





INSERT INTO employees VALUES

(employee_type (1000, project_list (project_type(101,'Avionics'), project_type(102,'Cruisecontrol'))))

Employee table ekata data danwa. E daddi eke col ekak thynwa projects kiyala

Ekata ayema ara proj_list kiyala hadagatha table type eka danwa, eka athule data danwa project_t type eken objects widiyata. Project eken ekata wena wenama object thynwa project_t eken. E tika store krpu table type eka thama proj_list

Data retrieve kraddi nested table eke ewa gnnwanm

SELECT *

FROM TABLE(SELECT t.projects FROM employees t WHERE eno = 1000);

Meken enwa eno eka 1000 wena employeege projects tika.

Hama employeegema num ekai projectsnui ganna one nam pahala widiyata

SELECT e.eno, p.*

FROM employee e TABLE(e.projects) p

Insert data into table

```
insert into employees values(
                    employee_type(1000,
                        project_list(
                            project_type(100,'project_1'),
                            project_type(200,'project_2')
)))
/
```

Data insert krnne danta inna kenekta nam issella eyage projects tika aragannwa table eka widiyata ita passe ekata values danwa

```
INSERT INTO TABLE(SELECT e.projects FROM employee e WHERE e.eno =  1000)
VALUES (103, “PROJECT NEPTUNE” )
```

Update nested table data

```
Update table (select projects from employees where eno = 1000) p
Set p.project_name = ‘Avionics’
Where p.project_no = 100
```

Delete nested table data

```
DELETE TABLE (SELECT e.project FROM employees e) p
Where p.project_no = 400
```

To drop a nested table add null

```
UPDATE employees e SET e.projects = NULL WHERE e.eno = 1000;
```

Add back a nested table

```
UPDATE employees e
SET e.projects = proj_list(proj_t(103, 'Project Pluto'))
WHERE e.eno=1000;
```

SQL>@Z:\script – execute script.sql file

SQL>spool z:\prac2.out - By spooling you can direct the output of the SQLPlus editor into a file

SQL> set echo on

SQL> set echo on

time consuming process: you may set termout off and echo on and then run the script to perform the process. So that the script would run as a background process