List of reasons/constraints to justify the choice of DBMS.[RDBMS]

* Our data is -
  + structured
  + Tables had fixed rows and columns
* Data retrieval is simple in RDBMS compared to nosql

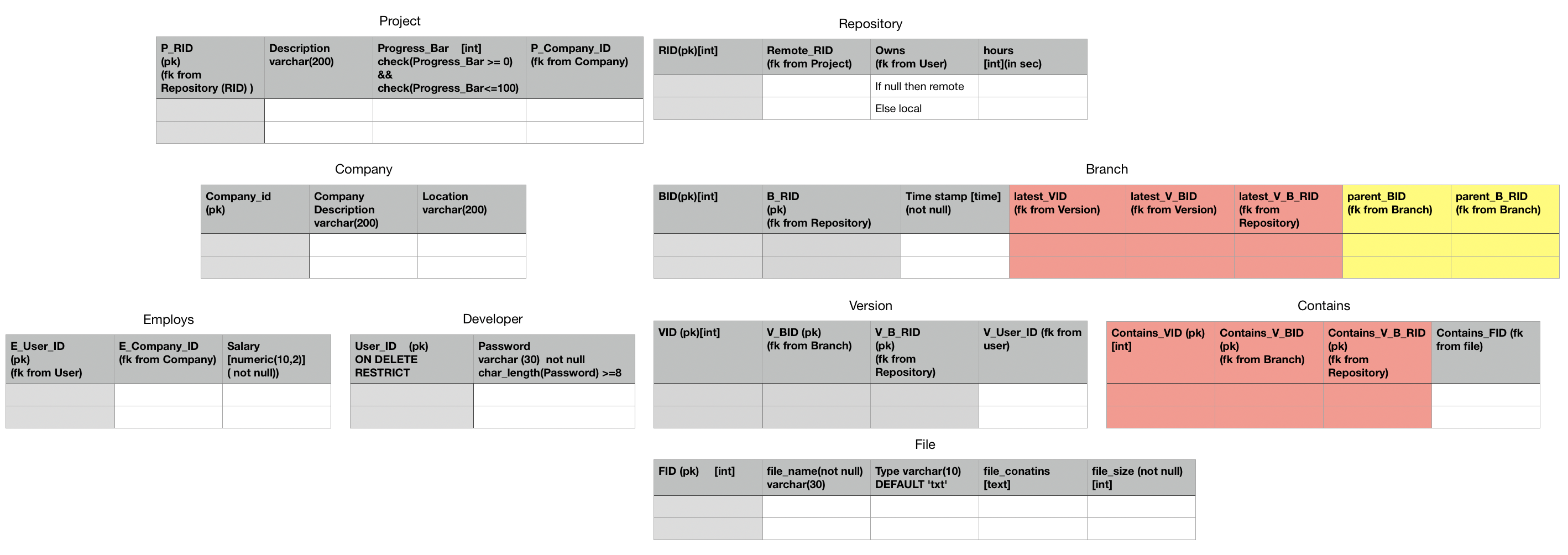
DBMS ASSIGNMENT 2

5TH SEM SECTION I

PES1UG19CS579 PES1UG19CS548 PES1UG19CS534

VISHWAS R UTHPAL P T R SUDHARSHAN

* Our data in database changes frequently so it would have been difficult if we had used nosql.
* RDBMS is best suited for complex queries.
* RDBMS focuses on vertical scaling .

Relational Table

createstatements.sql

drop database github;

create database github;

\c github

create table Project(

P\_RID int,

Description varchar(200),

Progress\_Bar int,

P\_Company\_ID int,

PRIMARY KEY (P\_RID));

create table Repository(

RID int,

Remote\_RID int not null,

Owns int,

Hours int,

PRIMARY KEY (RID));

create table Company(

Company\_ID int ,

Company\_Description varchar(200),

Location varchar(200),

PRIMARY KEY (Company\_ID));

create table Branch(

BID int,

B\_RID int,

Timestamp time not null,

latest\_VID int,

latest\_V\_BID int,

latest\_V\_B\_RID int,

parent\_BID int,

parent\_B\_RID int,

PRIMARY KEY(BID,B\_RID));

create table Employs(

E\_user\_ID int,

E\_Company\_ID int,

Salary numeric(10,2) not null,

PRIMARY KEY(E\_user\_ID));

create table Developer(

User\_ID int,

Password varchar(30) not null,

PRIMARY KEY (User\_ID));

create table Version(

VID int,

V\_BID int,

V\_B\_RID int,

V\_User\_ID int,

PRIMARY KEY (VID,V\_BID,V\_B\_RID));

create table Contains(

Contains\_VID int,

Contains\_V\_BID int,

Contains\_V\_B\_RID int,

COntains\_FID int,

PRIMARY KEY (Contains\_VID,Contains\_V\_BID,Contains\_V\_B\_RID));

create table File(

FID int,

file\_name varchar(30) not null,

type varchar(10),

file\_contains text,

file\_size int not null,

PRIMARY KEY(FID)

);

constriants.sql

\c github

ALTER TABLE Project add constraint p\_fk1 FOREIGN KEY (P\_RID) REFERENCES Repository(RID);

ALTER TABLE Project add constraint p\_fk2 FOREIGN KEY (P\_Company\_ID) REFERENCES Company(Company\_ID);

ALTER TABLE Project add CHECK (Progress\_Bar>=0);

ALTER TABLE Project add CHECK (Progress\_Bar<=100);

ALTER TABLE Repository add constraint r\_fk1 FOREIGN KEY (Remote\_RID) REFERENCES Project(P\_RID);

ALTER TABLE Repository add constraint r\_fk2 FOREIGN KEY (Owns) REFERENCES Developer(User\_ID);

ALTER TABLE Repository add CHECK (hours>=0);

ALTER TABLE Branch add constraint b\_fk1 FOREIGN KEY (B\_RID) REFERENCES Repository(RID);

ALTER TABLE Branch add constraint b\_fk2 FOREIGN KEY (latest\_VID,latest\_V\_BID,latest\_V\_B\_RID) REFERENCES Version(VID,V\_BID,V\_B\_RID); ---------------------------------------------

ALTER TABLE Branch add constraint b\_fk3 FOREIGN KEY (parent\_BID,parent\_B\_RID) REFERENCES Branch(BID,B\_RID); ---------------------------------------------

ALTER TABLE Employs add constraint e\_fk1 FOREIGN KEY (E\_user\_ID) REFERENCES Developer(User\_ID) on DELETE CASCADE;

ALTER TABLE Employs add constraint e\_fk2 FOREIGN KEY (E\_Company\_ID) REFERENCES Company(Company\_ID) on DELETE CASCADE;

ALTER TABLE Developer add CHECK (LENGTH(Password)>=8);

ALTER TABLE Version add constraint v\_fk1 FOREIGN KEY (V\_BID,V\_B\_RID) REFERENCES Branch(BID,B\_RID);

ALTER TABLE Version add constraint v\_fk2 FOREIGN KEY (V\_User\_ID) REFERENCES Developer(User\_ID) ON DELETE SET NULL;

ALTER TABLE Contains add constraint c\_fk1 FOREIGN KEY (Contains\_VID,Contains\_V\_BID,Contains\_V\_B\_RID) REFERENCES Version(VID,V\_BID,V\_B\_RID);

ALTER TABLE Contains add constraint c\_fk2 FOREIGN KEY (Contains\_FID) REFERENCES File(FID);

ALTER TABLE File ALTER COLUMN type SET DEFAULT '.txt';



Contribution of each member

Designing DATABASE for GitHub is complex as it involved understanding GitHub in detail .

We regularly had team meetings almost every week though Microsoft Teams and finalised the entities and operations in our DBMS

We together made lot of sketches like about how a repository should look and how we perform operations like pull push merge etc…

PES1UG19CS579 VISHWAS R

Converted ER diagram to Relational Schema and define constraints.

PES1UG19CS548 UTHPAL P

Wrote the DLL statements

PES1UG19CS534 T R SUDHARSHAN

Inserting data to the database