

Create database:

nama database : Tree

copy and paste this code to the sql:

(copy paste for each table, don't copy paste all)

First table:

```
CREATE TABLE newforestori (  
  `Id` int(11) NOT NULL AUTO_INCREMENT,  
  `BlockX` int(10) NOT NULL,  
  `BlockY` int(10) NOT NULL,  
  `x` int(100) NOT NULL,  
  `y` int(100) NOT NULL,  
  `TreeNum` varchar(9) NOT NULL COLLATE utf8mb4_general_ci,  
  `species` varchar(4) NOT NULL COLLATE utf8mb4_general_ci,  
  `spgroup` int(7) NOT NULL,  
  `Diameter` float NOT NULL,  
  `DiameterClass` int(10) NOT NULL,  
  `StemHeight` float NOT NULL,  
  `volume` float NOT NULL,  
  `production` float NOT NULL,  
  `status_tree` varchar(10) COLLATE utf8mb4_general_ci DEFAULT 0,  
  `Cut_Angle` int(11) NOT NULL,  
  `Cut_tree` varchar(10) NOT NULL COLLATE utf8mb4_general_ci,  
  `Damage_crown` int(10) NOT NULL,  
  `Damage_stem` int(10) NOT NULL,  
  PRIMARY KEY (`Id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
```

Second table:

```
CREATE TABLE scientificname (  
  SPCode varchar(5) NOT NULL,  
  LocalName varchar(20) NOT NULL,  
  GenCode varchar(20) NOT NULL,  
  SPName varchar(20) NOT NULL,  
  RoyalClass varchar(20) NOT NULL  
);
```

Third Table :

```
CREATE TABLE speciesname (  
  species_id INT PRIMARY KEY AUTO_INCREMENT, -- Auto-incrementing integer for unique ID  
  species_name VARCHAR(50) NOT NULL, -- Stores species name (up to 50 characters)  
  description TEXT, -- Optional: Detailed description (longer text)  
  common_name VARCHAR(30) -- Optional: Common name of the species (up to 30 characters)  
);
```

Fourth table :

```
CREATE TABLE damagetree (  
  id INT(10) NOT NULL AUTO_INCREMENT,  
  Cut_tree VARCHAR(10) NOT NULL,  
  Victim VARCHAR(10) NOT NULL,  
  Category_Damage INT(2) NOT NULL,  
  PRIMARY KEY (id)  
);
```

Fifth table :

```
CREATE TABLE victim (  
  Victim varchar(10) NOT NULL,  
  cut_tree varchar(500) NOT NULL,  
  Category_damage int(2) NOT NULL  
);
```

Next Step:

open table speciesname and import species.csv

Next Step:

open table scientificname import scientifname.Csv

Step 1: Run create_forest.php

Refresh it for 4 time to get 10 000 ++ data of tree

Step 2: Run this sql code

```
2. UPDATE newforestori SET Volume = 3.142 * POW((Diameter / 200), 2) * StemHeight *  
0.50  
3. UPDATE newforestori SET TreeNum = CONCAT('T', LPAD(BlockX, 2, '0'), LPAD(BlockY, 2,  
'0'), LPAD(x, 2, '0'), LPAD(y, 2, '0'))  
4. UPDATE newforestori SET status_tree = CASE WHEN spgroup IN (1, 2, 3, 5) AND Diameter  
> 45 THEN 'Cut' WHEN spgroup IN (1, 2, 3, 5) AND Diameter <= 45 THEN 'Keep' ELSE  
status_tree END  
5. UPDATE newforestori SET Cut_Angle = CASE WHEN status_tree = 'Cut' THEN  
FLOOR(RAND() * 360) + 1 ELSE NULL END  
6. UPDATE newforestori INNER JOIN speciesname ON speciesname.No =  
newforestori.species SET newforestori.species = speciesname.species  
7. UPDATE newforestori  
SET Production = 3.142 * POW((Diameter / 200), 2) * StemHeight * 0.50  
WHERE status_tree = 'cut';  
8. UPDATE newforestori  
SET cut_tree = CONCAT(x, ',', y)  
WHERE status_tree = 'cut';  
  
9. ALTER TABLE `newforestori` CHANGE `status_tree` `status_tree` VARCHAR(10)  
CHARACTER SET utf8mb4 COLLATE utf8mb4_general_ci NULL DEFAULT '0';
```

```
10. UPDATE newforestori
SET victim_tree = CONCAT(x, ',', y)
WHERE status_tree != 'cut' OR status_tree = 0;
```

Step 4: Run Find_damage.php

Step 5: run this sql code :

```
INSERT INTO victim (Victim, cut_tree, Category_damage) SELECT Victim, cut_tree,
Category_damage FROM damagetree;
```

Step 6:

```
1.UPDATE newforestori nf
INNER JOIN (
  SELECT Cut_tree,
    SUM(CASE WHEN Category_Damage = 1 THEN 1 ELSE 0 END) AS stem_victim_count,
    SUM(CASE WHEN Category_Damage = 2 THEN 1 ELSE 0 END) AS crown_victim_count
  FROM damagetree
  GROUP BY Cut_tree
) AS dt ON nf.cut_tree = dt.Cut_tree
SET nf.Damage_stem = dt.stem_victim_count,
nf.Damage_crown = dt.crown_victim_count;

2.UPDATE newforestori nf
INNER JOIN (
  SELECT Victim,
    SUM(CASE WHEN Category_Damage = 1 THEN 1 ELSE 0 END) AS stem_victim_count,
    SUM(CASE WHEN Category_Damage = 2 THEN 1 ELSE 0 END) AS crown_victim_count
  FROM damagetree
  GROUP BY victim
) AS dt ON nf.Victim_tree = dt.victim
SET nf.Damage_stem = dt.stem_victim_count,
nf.Damage_crown = dt.crown_victim_count;
```

--- End Victim Calculation ---

---Start Growth Production ---

1. Create new column in newforestori:

```
ALTER TABLE newforestori  
ADD Growth30 FLOAT NOT NULL,  
ADD Diameter30 FLOAT NOT NULL,  
ADD Status_tree30 VARCHAR(20) NOT NULL,  
ADD Production30 FLOAT NOT NULL;
```

2. run growth.php

3. run this sql code

```
UPDATE newforestori SET Status_tree30 = CASE WHEN spgroup IN (1, 2, 3, 5) AND  
Diameter30  
> 45 THEN 'Cut' WHEN spgroup IN (1, 2, 3, 5) AND Diameter30 <= 45 THEN 'Keep' ELSE  
Status_tree30 END
```

4. run this sql code

```
UPDATE newforestori  
SET Production30 = Growth30  
WHERE Status_tree30 = 'cut';
```