DBMS

ASSIGNMENT

Submitted By
Aiswarya Vijayakumar
Class: S4, CS-AI
Roll No: 04

ALBUMS (Album No, Album Name, Produced by, Year)
SONGS (Song No, Songs Start, Duration, Album No)
SUNG BY (Artist ID, Song No)
ARTIST (Artist Id, Artist Name

i Find the duration of the song with Song No = 123

ii Find names of all artists who have not sung a song

iii find name of all songs sung by "Beyonce"

iv find names of all albums that have atleast one song with duration greater than 5 minutes

v Name of all artists who've sung in album "Thriller"

i $\Pi_{(duration)} \sigma_{(Song\ No = 123)} (SONGS)$

ii $A \leftarrow \Pi_{(Artist\ id)} (SUNG\ BY)$

$B \leftarrow \Pi_{(Artist\ id)} (ARTIST)$

$C \leftarrow (B - A) \bowtie ARTIST$

$(B-A).Artist\ Id = ARTIST.artist\ id)$

$Result \leftarrow \Pi_{(Artist\ Name)} (C)$

iii $A \leftarrow \sigma_{(Artist\ Name = "Beyonce")}$

$B \leftarrow \Pi_{(Song\ No)} (A * SUNG\ BY)$

iv $A \leftarrow \sigma_{(Durations)} (SONGS)$

$B \leftarrow \Pi_{(Album\ Name)} (SONGS \bowtie ALBUMS)$

$(SONGS.Album\ No = ALBUMS.Album\ No)$

$B \leftarrow \Pi_{(Song\ No,\ Album\ No)}\ \sigma_{(Album\ No = A)}\ (SONGS)$

$C \leftarrow B * SONGS\ BY$

$Result \leftarrow \Pi_{(Artist\ Name)}\ (C * ARTIST)$

2, FACULTY (FacultyCode, Faculty Name)
SUBJECT (Subject Code, SubjectName, MaxMark, FacultyCode)
STUDENT (Student Code, Student Name, DOB, Student Branch,
MARK (Student Code, Subject Code, Mark)

i To get Name of all faculty

ii List of students enrolled for "CE"

iii Name and max marks of all subjects taught by "Alice"

iv Name of faculty who teaches "Fluid mechanics"

v List of students who scored more than 60 in DBMS

i $\Pi_{(Faculty\ Name)}\ (FACULTY)$

ii $\Pi_{(Student\ Name)}\ \sigma_{(Student\ Branch = CE)}\ (STUDENT)$

iii $\Pi_{(Subject\ Name,\ Max\ Marks)}\ \sigma_{(Faculty\ Name = Alice)}\ (FACULTY * SUBJ$

iv $A \leftarrow \Pi_{(Faculty\ Code)}\ \sigma_{(Subject\ Name = "Fluid\ mechanics")}\ (SUBJECT)$

$B \leftarrow \Pi_{(Faculty\ Name)}\ (A * FACULTY)$

B ← Π (Student Code) σ (Subject code = A AND Mark > 60) (MARK)

Result ← Π (Student Name) (B * STUDENT

3 CUSTOMER (customer ID, customer Name, mobile NO, account
ACCOUNT (account id, account type, account balance, bra
BRANCH (branch id, branch name, assets, branch address)
TRANSACTION (transaction id, account, customer id, account

i retrieve transaction id, amount and account id for all transaction greater than 1000

ii Customer id and account id for all accounts with balance less than 500

iii Customer name and total amount transacted for each custom

iv Retrieve account balance and branch address for each account owned by customer "Alice"

v Retrieve branch name and total assets for each branch havi atleast one account

i Π (Transaction id, account id) σ (amount > 1000) (TRANSACTION)

ii A ← σ (account balance < 500) (ACCOUNT)

Π (customer ID, account ID) (A * CUSTOMER)

← CUSTOMER * TRANSACTION)

Π
C CustomerName, SUM (amount) (A)

iv A ← σ (CUSTOMER)
(customerName = "Alice")

B ← (A * ACCOUNT)

Π (B * BRANCH)
(accountName, branchaddress)

v A ← (BRANCH . BrachChild - ACCOUNT - branch id)

B ← (A* BRANCH)

Π
(branch Name, Assets) (B)