

Tutorial 1

Q. Briefly describe five advantages of distributed databases as compared to centralized databases.

Q. Explain two types of homogeneous databases

Q. Briefly describe costs & disadvantages of distributed databases

Tutorial 2

Q1 Give three business conditions which is encouraging the use of distributed databases.

Q2 Contrast the following terms

Location transparency—Location autonomy

Asynchronous & synchronous distributed databases

Decentralized & distributed databases

Tutorial –3

Q1 Briefly describe advantages & disadvantages of the data replication form of distributed databases.

Q2 explain under what circumstances a snapshot replication approach appears to be best.

Q3 Explain under what circumstances a near real time replication approach appears to be best.

Q4. Briefly describe five factors that influence whether data replication is a viable distributed database design strategy for an application.

Tutorial 4

Q1 if locking is to be shared then why it is required? Q2 Give the examples of dirty read & lost updates?

Q3 How time stamping algorithm of concurrency control is different in distributed database as compared to centralized database.

Tutorial5

Q1 What is failure transparency? How this is different from concurrency transparency?

Q2 Give examples of

1) Database locking

2) Table locking

Q3 What is the meaning of granularity of concurrency control mechanisms? Discuss by giving examples?

Tutorial-6

Database suppliers & parts simplified

S(S#,city) 10,000 stored tuples at site A

P(P#,color) 100,000 stored tuples at site B

SP(S#,P#) 1,000,000 stored tuples at site A

Assume every tuple is 25 bytes (200 bits) long.

Query(“Get supplier no. for london suppliers of red parts”)

((S join SP join P) where CITY = ‘London’ AND Color = Color(‘Red’)){S#}

Estimation

No. of red parts = 10

No. of shipments by London Suppliers = 1,00,000

Communication Assumptions

Data Rate = 50,000 bits per second Access Delay = 0.1 Sec

$T[i] = (\text{total access delay}) + (\text{total data vol} / \text{data rate})$

Which becomes (no. of messages/10) + (no. of bits/50000)

Tutorial –7

Q2 Discuss the lost update & dirty read with the following

Transaction T1

read_item(X);

X := X-N;

Write_item(X);

read_item(Y);

Y=Y+N;

write_item(Y);

T1

read_item(X)

X:= X-N

Transaction T2

read_item(X);

X:=X+M;

Write_item(X);

T2

read_item(X);

X:= X+M;

Write_item(X);

read_item(Y);

write_item(X);

T1

T2

read_item(X)

X:=X-N;

Write_item(X);

read_item(X);

X:=X+M;

write_item(X);

read_item(Y);

Tutorial –8

Discussion on the various versions & editions available of DB2 Universal database. Enterprise edition, extended enterprise edition, workgroup edition, personnel edition, satellite edition, everyplace edition. Discuss the SDK, Applications development client, Thin Client, DRDA server, admin client, DB server as part of a DB2 Environment.

Discuss the Hierarchy of a DB2 as DB2--> Instance-->Database-->Tablespace---->Tables----->attributes---->atomic units.

Tutorial 9

a)

Transaction T1	Transaction T2	Transaction T3
read_item(X);	read_item(Z);	read_item(Y);
write_item(X);	read_item(Y);	read_item(Z);
read_item(Y);	write_item(Y);	write_item(Y);
write_item(Y);	read_item(X);	write_item(Z);
	Write_item(X);	

a)

Transaction T1	Transaction T2	Transaction T3
	read_item(Z);	
	read_item(Y);	
	write_item(Y);	
		read_item(Y);
	read_item(Z);	
read_item(X);		
write_item(X);		
		write_item(Y);
		write_item(Z);
	read_item(X);	
read_item(Y);		
write_item(Y);		
	write_item(X);	

c)

Transaction T1	Transaction T2	Transaction T3
		read_item(Y);
		read_item(Z);
Read_item(X);		
write_item(X)		write_item(Y);
		write_item(Z);
	read_item(Z);	
read_item(Y);		
write_item(Y);		
	read_item(Y);	

write_item(Y);

Write_item(X);

Write_item(X);

Tutorial-10

Q1. Discuss about the current applications of Distributed Database Management System around the globe.

Q2. Discuss the job functions of a Engineer in a distributed System.

Tutorial 11

Discuss the cascading Rollback

[ST_T,T1]

[R,T1,A]

[R,T1,D]

[W,T1,D,20]

[CT,T1]

[CHECKPOINT]

[ST_T,T2]

[R,T2,B]

[W,T2,B,12]

[ST_T,T4]

[R,T4,B]

[W,T4,B,15]

[ST_T,T3]

[W,T3,A,30]

[R,T4,A]

[W,T4,A,20]

[CT,T4]

[R,T2,D]

[W,T2,D,25]

System crash

Tutorial 12

Discuss immediate update on the following transaction

[ST_T,T1]

[R,T1,A]

[R,T1,D]

[W,T1,D,20]

[CT,T1]

[CHECKPOINT]

[ST_T,T2]

[R,T2,B]

[W,T2,B,12]

[ST_T,T4]

[R,T4,B]

[W,T4,B,15]

[ST_T,T3]

[W,T3,A,30]

[R,T4,A]

[W,T4,A,20]

[CT,T4]

[R,T2,D]

[W,T2,D,25]

System crash

Tutorial 13

What is shadowing. How it is equivalent to an NO-REDO/NO-UNDO Algorithm.