Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
School of Computing
B.Tech. – Computer Science and Engineering

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Course Code: 10211CS207
Course Name: Database Management Systems
Slot No : S2L5

DBMS TASK - 11 REPORT

Title: Backing up and recovery in databases

Submitted by:

VTUNO	REGISTER NUMBER	STUDENT NAME
VTU29699	24UECS0825	P.Yaghnasri

TASK 11: Backing up and recovery in databases CO4, K3

Perform following backup and recovery scenarios.

a) Recovering a NOARCHIVELOG Database with Incremental Backups
b) Restoring the Server Parameter File
c) Performing Recovery with a Backup Control File

Scenario 1: Recovering a NOARCHIVELOG Database with Incremental Backups

```
-- Step 1: Backup Database
BACKUP DATABASE [database_name] TO DISK = 'backup_file.bak' WITH
NOFORMAT, NOINIT,  NAME = 'Full Database Backup', SKIP, REWIND,
NOUNLOAD,  STATS = 10

-- Step 2: Create Incremental Backup
BACKUP DATABASE [database_name] TO DISK = 'incremental_backup.bak'
WITH DIFFERENTIAL, NOFORMAT, NOINIT,  NAME = 'Incremental
Database Backup', SKIP, REWIND, NOUNLOAD,  STATS = 10

-- Step 3: Simulate Data Loss
-- Intentionally delete or modify data.

-- Step 4: Restore Database
RESTORE DATABASE [database_name] FROM DISK = 'backup_file.bak' WITH
REPLACE

-- Step 5: Apply Incremental Backup
RESTORE DATABASE [database_name] FROM DISK =
'incremental_backup.bak' WITH REPLACE

-- Step 6: Recover Database
RECOVER DATABASE [database_name]

-- Step 7: Open Database
ALTER DATABASE [database_name] SET ONLINE
```

Scenario 2: Restoring the Server Parameter File (SPFILE)

```
-- Step 1: Backup SPFILE
BACKUP SERVER PARAMETER FILE TO FILE = 'spfile.bak';

-- Step 2: Simulate SPFILE Loss --
Delete or modify SPFILE.

-- Step 3: Restore SPFILE
STARTUP MOUNT
RESTORE SERVER PARAMETER FILE FROM FILE = 'spfile.bak';
SHUTDOWN
STARTUP
```

Scenario 3: Performing Recovery with a Backup Control File

```
-- Step 1: Backup Control File
BACKUP CONTROLFILE TO FILE = 'controlfile.bak';

-- Step 2: Simulate Control File Loss --
Delete or modify control file.

-- Step 3: Restore Control File
STARTUP MOUNT
RESTORE CONTROLFILE FROM FILE = 'controlfile.bak';
ALTER CONTROLFILE REUSE;

-- Step 4: Recover Database
RECOVER DATABASE USING BACKUP CONTROLFILE;

-- Step 5: Open Database
ALTER DATABASE OPEN RESETLOGS;
```

SQL Server Commands:

- BACKUP DATABASE
- RESTORE DATABASE
- RECOVER DATABASE
- ALTER DATABASE

- BACKUP SERVER PARAMETER FILE
- RESTORE SERVER PARAMETER FILE
- BACKUP CONTROLFILE
- RESTORE CONTROLFILE

Scenario	**Purpose**	**Key Commands**	**Final Output**
1. NOARCHIVELOG Recovery	Recover data using full + incremental backups	BACKUP, RESTORE, RECOVER	Database restored and online
2. SPFILE Restore	Restore lost/corrupted server parameter file	BACKUP SPFILE, RESTORE SPFILE	Instance restarted successfully
3. Control File Recovery	Recover using a backup control file	BACKUP CONTROLFILE, RESTORE CONTROLFILE	Database opened with RESETLOGS

Result: Thus the task has executed successfully.