ASSIGNMENT 11

1. CREATE PROCEDURE GetEmployeeInfo @dept\_no char(4)

AS

BEGIN

SELECT e.emp\_no, e.emp\_fname + ' ' + e.emp\_lname as full\_name,

d.dept\_name

FROM employee e

join department d on e.dept\_no = d.dept\_no

where d.dept\_no =@dept\_no

END

exec GetEmployeeInfo 'd1'

A screenshot of a cell phone

Description automatically generated

1. CREATE PROCEDURE IncreaseBudgetAmount @project\_no char(4), @new\_budget float,

@message varchar(100) output

AS

BEGIN

IF NOT EXISTS (

SELECT 1 from dbo.project p where p.project\_no = @project\_no

)

SET @message ='Invalid Project Number'

ELSE IF EXISTS (

SELECT 1 from dbo.project p where p.project\_no = @project\_no

and @new\_budget> p.budget

)

BEGIN

UPDATE dbo.project set budget = @new\_budget where project\_no = @project\_no;

SET @message ='budget amount increased'

END;

ELSE IF EXISTS (

SELECT 1 from dbo.project p where p.project\_no = @project\_no

and @new\_budget<= p.budget

)

BEGIN

SET @message ='New budget must be greater than the current budget'

END

END

declare @message varchar(100), @projec\_no varchar(4), @new\_budget float

set @projec\_no ='f1'

set @new\_budget =10

exec IncreaseBudgetAmount @projec\_no, @new\_budget, @message output

print @message

set @projec\_no ='p1'

set @new\_budget =10

exec IncreaseBudgetAmount @projec\_no, @new\_budget, @message output

print @message

set @projec\_no ='p1'

set @new\_budget =400000

exec IncreaseBudgetAmount @projec\_no, @new\_budget, @message output

print @message

A screenshot of a social media post

Description automatically generated

1. create function GetBudgetAmount (@project\_name varchar(50) )

returns float

as

begin

return

(

select budget from project where project\_name = @project\_name

)

end

select dbo.GetBudgetAmount('CRM system')

1. A transaction is a logical unit of processing in a DBMS which entails one or more database access operation. A Transaction can either be implicit such as an INSERT or UPDATE or explicit when defined to BEGIN TRANSACTION …. COMMIT/ROLLBACK TRANSACTION.
2. Consistency is and ACID property which states that database must be valid according to all defined rules, including constraints, cascades, triggers, and any combination thereof. In this case the DDL above creates a table with PK constraint, non-nullable columns. All these rules must be valid according to ACID property( specifically Consistentency)
3. Isolation ensures that concurrent execution of transactions leaves the database in the same state that would have been obtained if the transactions were executed sequentially.
4. It voliates all the ACID properties.
   1. Atomicity
   2. Consistency
   3. Isolation
   4. Durability
5. Concurrency is need because DBMS are designed to support multiple users and processes operating various set of tasks such as Inserting records, Updating records while other processes read from those records at the same time. If concurrency is uncontrolled, the following issues with be present: dirty reds, lost update problem, non-repeatable read, and the phantom read problem.
6. A local transaction occurs within a database. Distributed transaction involves two or more databases, and often time distributed across the network(s).
7. A save point marks a specified point within the transaction so that all updates that follow can be canceled without canceling the entire transaction
8. Locking means that the transaction marks the data that it accesses so that the DBMS knows not to allow other transactions to modify it until the first transaction succeeds or fails.

Row versioning provides each reading transaction the prior, unmodified version of data that is being modified by another active transaction. This allows readers to operate without acquiring locks, i.e., writing transactions do not block reading transactions, and readers do not block writers.

1. YES, by either changing the isolation level using the SET TRANSACTION ISOLATION LEVEL statement or by using hints. For example, for databases in “READ COMMITED” Isolation Level, NOLOCK hint allows the user to read non-committed data which essentially skips the waiting of exclusive placed by the writer process