**LAB 7 SOLUTIONS**

**Exercise 1**

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| Q1 | Write a table-valued function that takes an id number (integer) as input and returns a table which contains all details of projects being worked on an employee of that id number. |
|  | CREATE function project\_details(@id integer)  RETURNS @projects1 table  (projectid CHAR(8) NOT NULL,  deptcode CHAR(5),  description VARCHAR(200),  startdate DATE,  enddate DATE,  revenue NUMERIC(12, 2)  )  as  begin  insert into @projects1  select \* from projects  where projectid in  (select projectid from workson where employeeid = @id);  return  end;  select \* from dbo.project\_details(2); |
| Q2 | Write a recursive scalar-valued function that takes input n to return the nth Fibonacci number. |
|  | create function fib  (@x integer)  returns integer  as  begin  declare @z integer  if(@x = 0)  set @z = 0;  else if(@x=1)  set @z = 1  else  set @z = dbo.fib(@x - 2)+ dbo.fib(@x - 1);  return @z;  end  select dbo.fib(11) as 'fibonacci'; |
| Q3. | Write an iterative table-valued function that takes input n to return n Fibonacci numbers sequentially in a table. |
|  | create function iterFib  (@x integer)  returns @fib table  (fibonacci integer)  as  begin  declare @temp1 integer, @temp2 integer;  set @temp1 = 1  set @temp2 = 1  insert into @fib select 1;  if(@x = 1) return;  else if (@x = 2)  begin  insert into @fib select 1;  return;  end  else begin  insert into @fib select 1;  while(@x > 2)  begin  insert into @fib select @temp1+@temp2;  set @temp1 = @temp1 + @temp2;  set @temp2 = @temp1 - @temp2;  set @x = @x - 1;  end  end  return;  end  select \* from dbo.iterFib(20); |

**Exercise 2**

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| **Q1** | Write a T-SQL query to print all of the information about employees with last names that have exactly 8 characters and end in 'ware'. |
|  | DECLARE EMPLOYEE\_CUR CURSOR LOCAL FOR SELECT EMPLOYEEID,  FIRSTNAME, LASTNAME, DEPTCODE, SALARY  FROM EMPLOYEES;  DECLARE @EMPLOYEEID VARCHAR(15),  @FIRSTNAME VARCHAR(30),  @LASTNAME VARCHAR(30),  @DEPTCODE VARCHAR(15),  @SALARY VARCHAR(15);    OPEN EMPLOYEE\_CUR;  WHILE 1=1 BEGIN  FETCH NEXT FROM EMPLOYEE\_CUR INTO @EMPLOYEEID,  @FIRSTNAME, @LASTNAME, @DEPTCODE, @SALARY; IF  @@FETCH\_STATUS <> 0 BREAK ; IF @LASTNAME LIKE '\_\_\_\_WARE'  BEGIN  PRINT ISNULL(@EMPLOYEEID, '') + ' ' + ISNULL(@FIRSTNAME,  '') + ' ' + ISNULL(@LASTNAME, '') + ' ' +  ISNULL(@DEPTCODE, '') + ' ' + ISNULL(@SALARY, '');  END  END; |
| **Q2** | Write a T-SQL query to print all the ID and last name of all employees who work for department ACTNG and make less than $30,000. |
|  | DECLARE EMPLOYEE\_CUR CURSOR LOCAL FOR SELECT EMPLOYEEID,  FIRSTNAME, LASTNAME, DEPTCODE, SALARY  FROM EMPLOYEES;  DECLARE @EMPLOYEEID VARCHAR(15),  @FIRSTNAME VARCHAR(30),  @LASTNAME VARCHAR(30),  @DEPTCODE VARCHAR(15),  @SALARY NUMERIC(9,2);    OPEN EMPLOYEE\_CUR;  WHILE 1=1 BEGIN |

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|  | FETCH NEXT FROM EMPLOYEE\_CUR INTO @EMPLOYEEID,  @FIRSTNAME, @LASTNAME, @DEPTCODE, @SALARY; IF  @@FETCH\_STATUS <> 0 BREAK ; IF @DEPTCODE LIKE 'ACCNT' AND  @SALARY > 30000  BEGIN  PRINT @EMPLOYEEID + ' '+ @LASTNAME;  END END; |
| **Q3** | Write a T-SQL query to print the names of all people who work in the Consulting department and who spend more than 20% of their time on the project with ID ADT4MFIA. |
|  | DECLARE @C\_FIRST VARCHAR(30)  DECLARE @C\_LAST VARCHAR(30)  DECLARE C\_NAME CURSOR LOCAL FOR  SELECT FIRSTNAME,LASTNAME FROM EMPLOYEES  WHERE DEPTCODE IN( SELECT CODE FROM DEPARTMENTS WHERE  NAME='CONSULTING')AND EMPLOYEEID  IN( SELECT W1.EMPLOYEEID FROM WORKSON W1  WHERE W1.PROJECTID='ADT4MFIA' AND W1.ASSIGNEDTIME/(SELECT  SUM(W.ASSIGNEDTIME) FROM WORKSON W WHERE W.EMPLOYEEID =  W1.EMPLOYEEID GROUP BY W.EMPLOYEEID)>.2);  BEGIN  OPEN C\_NAME;  WHILE 1=1 BEGIN  FETCH C\_NAME INTO @C\_FIRST,@C\_LAST; IF @@FETCH\_STATUS <> 0  BREAK ;  PRINT ISNULL(@C\_FIRST, '') + ' ' + ISNULL(@C\_LAST, '');  END;  CLOSE C\_NAME;  DEALLOCATE C\_NAME;  END; |
| **Q4** | Write a T-SQL query to find the first and last name of all employees who are paid more than someone in the Accounting department. |
|  | DECLARE @C\_FIRST VARCHAR(30);  DECLARE @C\_LAST VARCHAR(30);  DECLARE C\_NAME CURSOR LOCAL FOR  SELECT FIRSTNAME, LASTNAME FROM EMPLOYEES WHERE SALARY >  ANY(SELECT SALARY FROM EMPLOYEES E, DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING');  BEGIN OPEN C\_NAME;  WHILE 1=1 BEGIN |
|  | FETCH C\_NAME INTO @C\_FIRST,@C\_LAST;  PRINT ISNULL(@C\_FIRST, '') + ' ' + ISNULL(@C\_LAST, ''); IF  @@FETCH\_STATUS <> 0 BREAK ; END; CLOSE C\_NAME;  DEALLOCATE C\_NAME;  END; |

*Note: Solutions provided are for your own reference and may have other possible variations or interpretations. In case of any query, kindly contact your lab instructors.*