Lab #3

Malik Zohaib Mustafa

01-134192-030

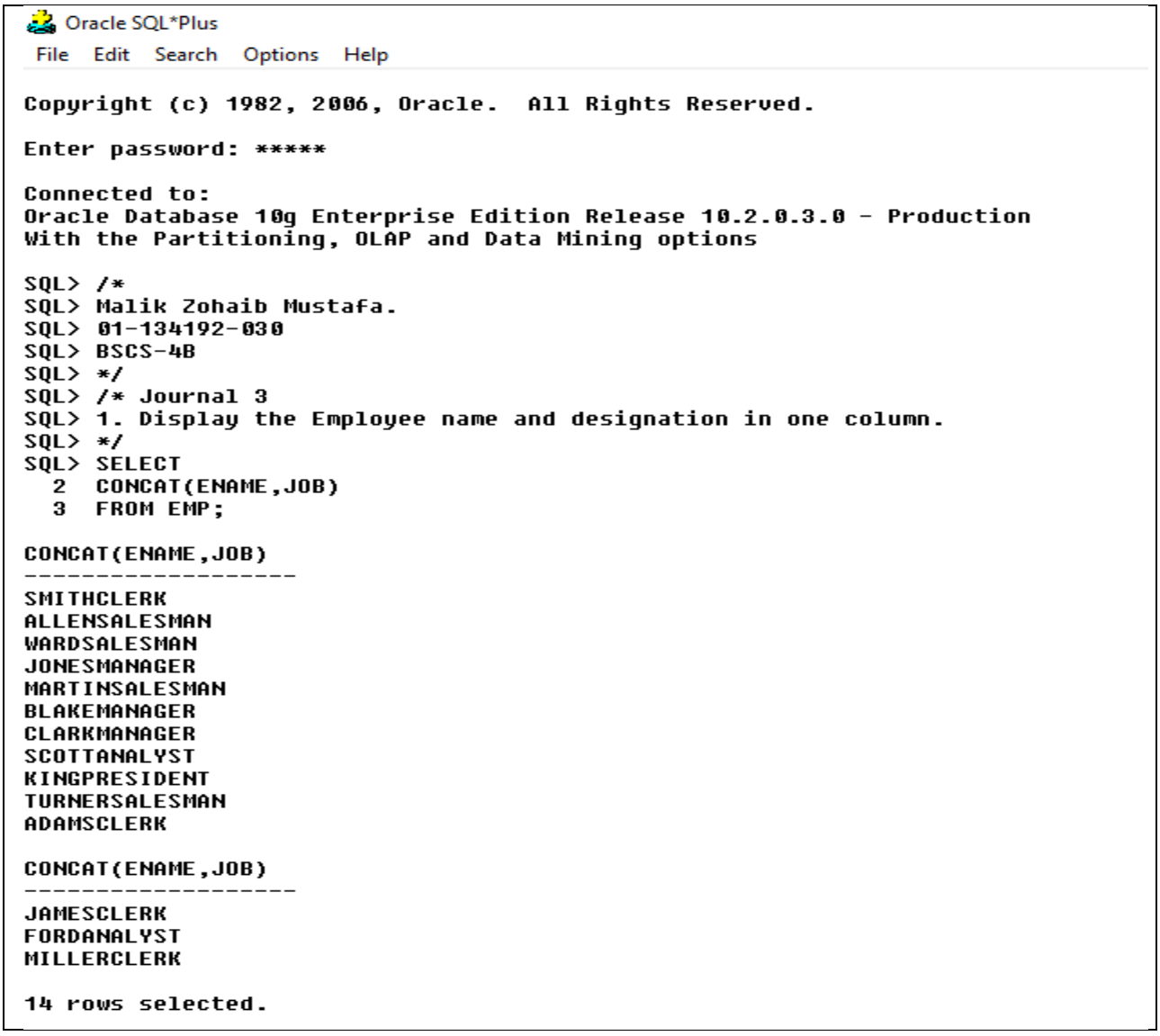
BSCS-4B

1. Display the Employee name and designation in one column.

Query:

```
SELECT
CONCAT (ENAME, JOB)
FROM EMP;
```

Output:



```
Oracle SQL*Plus
File  Edit  Search  Options  Help

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Enter password: *****

Connected to:
Oracle Database 10g Enterprise Edition Release 10.2.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 1. Display the Employee name and designation in one column.
SQL> */
SQL> SELECT
  2  CONCAT(ENAME,JOB)
  3  FROM EMP;

CONCAT(ENAME,JOB)
------------------
SMITHCLERK
ALLENSALESMAN
WARDSALESMAN
JONESMANAGER
MARTINSALESMAN
BLAKEMANAGER
CLARKMANAGER
SCOTTANALYST
KINGPRESIDENT
TURNERSALESMAN
ADAMSCLERK

CONCAT(ENAME,JOB)
------------------
JAMESCLERK
FORDANALYST
MILLERCLERK

14 rows selected.
```

2. Display all records from table whose name is Smith using all uppercases in where clause.

Query:

```
SELECT *
FROM EMP
WHERE UPPER(ENAME)='SMITH';
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 2. Display all records from table whose name is Smith using all uppercases in where clause.
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE UPPER(ENAME)='SMITH';

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7369 SMITH      CLERK           7902 17-DEC-80        800
        20
```

3. Display all records from table whose name is Smith using first letter capitalized in where clause.

Query:

```
SELECT *
FROM EMP
WHERE INITCAP(ENAME)='Smith';
```

Output:

```
SQL> */
SQL> /* Journal 3
SQL> 3. Display all records from table whose name is Smith using first letter captializaed in where

SQL> e.
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE INITCAP(ENAME)='Smith';

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7369 SMITH      CLERK           7902 17-DEC-80        800
        20
```

4. Display all records from table whose name is Smith using all lowercases in where clause.

Query:

```
SELECT *
FROM EMP
WHERE LOWER(ENAME)='smith';
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 4. Display all records from table whose name is Smith using all lowercases in where claus
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE LOWER(ENAME)='smith';

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7369 SMITH      CLERK           7902 17-DEC-80        800
        20
```

5. Display all records from table whose name is Smith using lower and upper cases both. i.e., SMITH, smith both should be acceptable.

Query:

```
SELECT *
FROM EMP
WHERE LOWER(ENAME)='smith'
AND
UPPER(ENAME)='SMITH';
```

Output:

```
SQL>  /*
SQL>  Malik Zohaib Mustafa.
SQL>  01-134192-030
SQL>  BSCS-4B
SQL>  */
SQL>  /* Journal 3
SQL> 5. Display all records from table whose name is Smith using lower and upper cases both. i.e. SM
ITH, smith both should be acceptable.
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE LOWER(ENAME)='smith'
  4  AND
  5  UPPER(ENAME)='SMITH';

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7369 SMITH      CLERK           7902 17-DEC-80        800
        20
```

6. Show the result of those employees whose name length exceeds 8.

Query:

```
SELECT *
FROM EMP
```

```
WHERE
LENGTH(ENAME)>8;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 6. Show the result of those employees whose name length exceeds 8.
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE
  4  LENGTH(ENAME)>8;

no rows selected
```

7. Display ename, salary and concatenated result of deptno and empno from table EMP where salary is less than 2500 or job is equal to MANAGER.

Query:

```
SET LINESIZE 500
SELECT ENAME, SAL, CONCAT (DEPTNO, EMPNO) "Concatinated Data"
FROM
EMP
WHERE
SAL<2500
OR
 JOB = 'MANAGER';
```

Output:

```
SQL>  /*
SQL>  Malik Zohaib Mustafa.
SQL>  01-134192-030
SQL>  BSCS-4B
SQL>  */
SQL>  /* Journal 3
SQL>  7. Display ename, salary and concatenated result of deptno and empno from table EMP where sala
r
SQL>  less than 2500 or job is equal to MANAGER.
SQL> */
SQL> SET LINESIZE 500
SQL> SELECT ENAME,SAL,CONCAT(DEPTNO,EMPNO) "Concatinated Data"
  2  FROM
  3  EMP
  4  WHERE
  5  SAL<2500
  6  OR
  7  JOB = 'MANAGER';

ENAME             SAL Concatinated Data
---------- ---------- --------------------------------------------------------------------------------
SMITH              800 207369
ALLEN             1600 307499
WARD              1250 307521
JONES             2975 207566
MARTIN            1250 307654
BLAKE             2850 307698
CLARK             2450 107782
TURNER            1500 307844
ADAMS             1100 207876
JAMES              950 307900
MILLER            1300 107934

11 rows selected.
```

8. Display first 3 characters of ename, deptno and job from table EMP where second character of ename is ‘A’ and deptno is 30 or job is SALESMAN.

Query:

```
SELECT
SUBSTR('ENAME',1,3), DEPTNO, JOB
FROM
EMP
WHERE
SUBSTR('ENAME',1,3) LIKE '_a%'
AND
DEPTNO = 30
OR
 JOB = 'SALESMAN';
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 8. Display first 3 characters of ename, deptno and job from table EMP where second character of

SQL> e is 'A' and deptno is 30 or job is SALESMAN.
SQL> */
SQL> SELECT
  2  SUBSTR('ENAME',1,3),DEPTNO,JOB
  3  FROM
  4  EMP
  5  WHERE
  6  SUBSTR('ENAME',1,3) LIKE '_a%'
  7  AND
  8  DEPTNO = 30
  9  OR
 10  JOB = 'SALESMAN';

SUB     DEPTNO JOB
--- ---------- ---------
ENA         30 SALESMAN
ENA         30 SALESMAN
ENA         30 SALESMAN
ENA         30 SALESMAN
```

9. Right Append dollar sign in Employee table to make salary 8-digit value.

Query:

```
SELECT ENAME, EMPNO, DEPTNO, SAL, RPAD(SAL,8,'$')
FROM EMP;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 9. Right Append dollar sign in Employee table to make salary 8 digit value.
SQL> */
SQL> SELECT ENAME,EMPNO,DEPTNO,SAL,RPAD(SAL,8,'$')
  2  FROM EMP;

ENAME           EMPNO     DEPTNO        SAL RPAD(SAL
---------- ---------- ---------- ---------- --------
SMITH            7369         20        800 800$$$$$
ALLEN            7499         30       1600 1600$$$$
WARD             7521         30       1250 1250$$$$
JONES            7566         20       2975 2975$$$$
MARTIN           7654         30       1250 1250$$$$
BLAKE            7698         30       2850 2850$$$$
CLARK            7782         10       2450 2450$$$$
SCOTT            7788         20       3000 3000$$$$
KING             7839         10       5000 5000$$$$
TURNER           7844         30       1500 1500$$$$
ADAMS            7876         20       1100 1100$$$$

ENAME           EMPNO     DEPTNO        SAL RPAD(SAL
---------- ---------- ---------- ---------- --------
JAMES            7900         30        950 950$$$$$
FORD             7902         20       3000 3000$$$$
MILLER           7934         10       1300 1300$$$$

14 rows selected.
```

10. Calculate annual salary and rename it as PER_ANNUM_SALARY of the employee whose ename is KING and salary is greater than 1500 from table EMP.

Query:

```
SELECT ENAME, (12*SAL) AS ANNUALSALARY
FROM EMP
WHERE
ENAME = 'KING'
AND
SAL>1500;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 10. Calculate annual salary and rename it as PER_ANNUM_SALARY of the employee whose ename is KI
NG and salary is greater than 1500 from table EMP.
SQL> */
SQL> SELECT ENAME,(12*SAL) AS ANNUALSALARY
  2  FROM EMP
  3  WHERE
  4  ENAME = 'KING'
  5  AND
  6  SAL>1500;

ENAME      ANNUALSALARY
---------- ------------
KING              60000
```

11. Round 345.6665 up to 2 digits from table DUAL.

Query:

```
SELECT
 ROUND (345.6665,2)
 FROM
 DUAL;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 11. Round 345.6665 upto 2 digits from table DUAL.
SQL> */
SQL> SELECT
  2  ROUND ( 345.6665,2)
  3  FROM
  4  DUAL;

ROUND(345.6665,2)
-----------------
           345.67
```

12. Members of the HR department want to have more flexibility with the queries that you are writing. They would like a report that displays the last name and salary of employees who earn more than an amount that the user specifies after a prompt.

Query:

```
SELECT
ENAME, SAL
FROM EMP
WHERE
SAL>&SAL;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 12. Members of the HR department want to have more flexibility with the queries that you are wr

SQL> . They would like a report that displays the last name and salary of employees who earn more th

SQL>  amount that the user specifies after a prompt.
SQL> */
SQL> SELECT
  2  ENAME,SAL
  3  FROM EMP
  4  WHERE
  5  SAL>&SAL;
Enter value for sal: 1500
old   5: SAL>&SAL
new   5: SAL>1500

ENAME             SAL
---------- ----------
ALLEN            1600
JONES            2975
BLAKE            2850
CLARK            2450
SCOTT            3000
KING             5000
FORD             3000

7 rows selected.
```

13. The HR department wants to run reports based on a manager. Create a query that prompts the user for a manager ID and generates the employee ID, last name, salary, and department for that manager's employees. The HR department wants the ability to sort the report on a selected column. You can test the data with the following values:
manager ID = 103, sorted by employee last name:
manager ID = 201, sorted by salary:

Sorted by Name:
Query:

```
SELECT *
FROM EMP
WHERE
MGR = & MGR
ORDER BY
ENAME ASC;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 13. The HR department wants to run reports based on a manager. Create a query that prompts the

SQL> for a manager ID and generates the employee ID, last name, salary, and department for that mana

SQL>  employees. The HR department wants the ability to sort the report on a selected column. You ca

SQL> t the data with the following values:
SQL> manager ID = 103, sorted by employee last name:
SQL> manager ID = 201, sorted by salary:
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE
  4  MGR = & MGR
  5  ORDER BY
  6  ENAME ASC;
Enter value for mgr: 7698
old   4: MGR = & MGR
new   4: MGR = 7698

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ----------
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30
      7900 JAMES      CLERK           7698 03-DEC-81        950                    30
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30
```

Sorted by Salary:
Query:

```
SELECT *
 FROM EMP
 WHERE
```

```
MGR = & MGR
ORDER BY SAL ASC;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 13. The HR department wants to run reports based on a manager. Create a query that prompts the
user for a manager ID and generates the employee ID, last name, salary, and department for that mana
ger's employees. The HR department wants the ability to sort the report on a selected column. You ca
n test the data with the following values:
SQL> manager ID = 103, sorted by employee last name:
SQL> manager ID = 201, sorted by salary:
SQL> */
SQL> SELECT *
  2  FROM EMP
  3  WHERE
  4  MGR = & MGR
  5  ORDER BY SAL ASC;
Enter value for mgr: 7698
old   4: MGR = & MGR
new   4: MGR = 7698

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ----------
      7900 JAMES      CLERK           7698 03-DEC-81        950                    30
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30
```

14. Write a query that displays the last name (with the first letter uppercase and all other letters lowercase) and the length of the last name for all employees whose name starts with the letters J, A, or M. Give each column an appropriate label. Sort the results by the employees' last names.

Query:

```
SELECT
INITCAP(ENAME) AS NAME,
LENGTH(ENAME) AS LENGTHOFNAME
FROM
EMP
WHERE
SUBSTR(ENAME,1,1) ='J'
OR
ENAME LIKE 'M%'
OR
SUBSTR(ENAME,1,1) ='A'
ORDER BY ENAME ASC;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 14. Write a query that displays the last name (with the first letter uppercase and all other le

SQL>  lowercase) and the length of the last name for all employees whose name starts with the letter

SQL> A, or M. Give each column an appropriate label. Sort the results by the employees' last names.
SQL> */
SQL> SELECT
  2  INITCAP(ENAME) AS NAME,
  3  LENGTH(ENAME) AS LENGTHOFNAME
  4  FROM
  5  EMP
  6  WHERE
  7  SUBSTR(ENAME,1,1)='J'
  8  or
  9  ENAME LIKE 'M%'
 10  OR
 11  SUBSTR(ENAME,1,1)='A'
 12  ORDER BY ENAME ASC;

NAME       LENGTHOFNAME
---------- ------------
Adams                 5
Allen                 5
James                 5
Jones                 5
Martin                6
Miller                6

6 rows selected.
```

15. Write a query to display the current date. Label the column Date.

Query:

```
SELECT
 TO_CHAR (SYSDATE,'DD/MM/YYYY ') "Date"
 FROM
 DUAL;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL> 15. Write a query to display the current date. Label the column Date
SQL> */
SQL> SELECT
  2  TO_CHAR(SYSDATE,'DD/MM/YYYY ') "Date"
  3  FROM
  4  DUAL;

Date
-----------
30/03/2021
```

16. The HR department needs a report to display the employee number, last name, salary, and salary increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.

Query:

```
SELECT
EMPNO "Employee Number",
ENAME, SAL, ROUND(SAL*(15.5/100),0) "New Sal"
FROM EMP;
```

Output:

```
SQL>  /*
SQL>  Malik Zohaib Mustafa.
SQL>  01-134192-030
SQL>  BSCS-4B
SQL>  */
SQL>  /* Journal 3
SQL> 16. The HR department needs a report to display the employee number, last name, salary, and sal
ary increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.
*/
SQL> SELECT
  2  EMPNO "Employee_Number",
  3  ENAME,SAL,ROUND(SAL*(15.5/100),0) "New Sal"
  4  FROM EMP;

Employee_Number ENAME             SAL    New Sal
--------------- ---------- ---------- ----------
           7369 SMITH             800        124
           7499 ALLEN            1600        248
           7521 WARD             1250        194
           7566 JONES            2975        461
           7654 MARTIN           1250        194
           7698 BLAKE            2850        442
           7782 CLARK            2450        380
           7788 SCOTT            3000        465
           7839 KING             5000        775
           7844 TURNER           1500        233
           7876 ADAMS            1100        171

Employee_Number ENAME             SAL    New Sal
--------------- ---------- ---------- ----------
           7900 JAMES             950        147
           7902 FORD             3000        465
           7934 MILLER           1300        202

14 rows selected.
```

17. The HR department wants to find the length of employment for each employee. For each employee, display the last name and calculate the number of months between today and the date on which the employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months employed. Round the number of months up to the closest whole number.

Query:

```
SELECT ENAME, ROUND (Months_between (sysdate, HIREDATE),0)
"MonthsWorked"
FROM EMP
ORDER BY ENAME ASC;
```

Output:

```
SQL>  /*
SQL>  Malik Zohaib Mustafa.
SQL>  01-134192-030
SQL>  BSCS-4B
SQL>  */
SQL>  /* Journal 3
SQL> 17. The HR department wants to find the length of employment for each employee. For each employ
ee, display the last name and calculate the number of months between today and the date on which the
 employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months empl
oyed. Round the number of months up to the closest whole number.
SQL> */
SQL>  SELECT ENAME, ROUND(Months_between(sysdate,HIREDATE),0) "MonthsWorked"
  2   FROM EMP
  3  ORDER BY ENAME ASC;

ENAME      MonthsWorked
---------- ------------
ADAMS               406
ALLEN               481
BLAKE               479
CLARK               478
FORD                472
JAMES               472
JONES               480
KING                472
MARTIN              474
MILLER              470
SCOTT               407

ENAME      MonthsWorked
---------- ------------
SMITH               483
TURNER              475
WARD                481

14 rows selected.
```

18. Write a query that produces the following for each employee:
    <employee last name> earns <salary> monthly but wants <3 times salary>. Label the column Dream Salary

Query:

```
SELECT ENAME || ' earns ' || sal ||' monthly but want ' || 3 * (SAL) AS "DREAM
SALARY" FROM EMP;
```

Output:

```
SQL> /*
SQL> Malik Zohaib Mustafa.
SQL> 01-134192-030
SQL> BSCS-4B
SQL> */
SQL> /* Journal 3
SQL>
SQL> 18. Write a query that produces the following for each employee:
SQL>  <employee last name> earns <salary> monthly but wants <3 times salary>. Label the column Dream

SQL> ry
SQL> */SELECT ENAME || ' earns ' || sal ||' monthly but want ' || 3 * (SAL) AS "DREAM SALARY" FROM E
MP;

DREAM SALARY
--------------------------------------------------------------------------------------------------------
SMITH earns 800 monthly but want 2400
ALLEN earns 1600 monthly but want 4800
WARD earns 1250 monthly but want 3750
JONES earns 2975 monthly but want 8925
MARTIN earns 1250 monthly but want 3750
BLAKE earns 2850 monthly but want 8550
CLARK earns 2450 monthly but want 7350
SCOTT earns 3000 monthly but want 9000
KING earns 5000 monthly but want 15000
TURNER earns 1500 monthly but want 4500
ADAMS earns 1100 monthly but want 3300

DREAM SALARY
--------------------------------------------------------------------------------------------------------
JAMES earns 950 monthly but want 2850
FORD earns 3000 monthly but want 9000
MILLER earns 1300 monthly but want 3900

14 rows selected.
```

QUIZ

Name: Malik Zohaib Mustafa

Enrollment: 01-134192-030

Section BSCS-4B

DBMS LAB QUIZ

To Explain the Functions used in above Tasks

- CONCAT
- UPPER
- INITCAP
- LOWER
- LENGTH
- SUBSTR
- RPAD
- ROUND
- TO_CHAR

CONCAT Function:

This function allows you to concatenate two strings together and then returns the result (a string) of concatenating two string values. This function is equivalent to the concatenation operator (||).

Example:

```
SELECT
CONCAT (ENAME, JOB)
FROM EMP;
```

UPPER Function:

This function converts all letters in the specified string to uppercase. If there are characters in the string that are not letters, they are unaffected by this function.

Example:

```
SELECT *
FROM EMP
WHERE UPPER(ENAME)='SMITH';
```

INITCAP Function:

This function sets the first character in each word to uppercase and the rest to lowercase.

Example:

```
SELECT *
FROM EMP
WHERE INITCAP(ENAME)='Smith';
```

LOWER Function:

This function converts all letters in the specified string to lowercase. If there are characters in the string that are not letters, they are unaffected by this function.

Example:

```
SELECT *
FROM EMP
WHERE LOWER(ENAME)='smith'
```

LENGTH Function:

This function returns the length of the specified string.

Example:

```
SELECT *
FROM EMP
WHERE
LENGTH(ENAME)>8;
```

SUBSTR Function:

This function allows us to extract a substring from a string.

Example:

```
SELECT
SUBSTR('ENAME',1,3), DEPTNO, JOB
FROM
EMP
WHERE
SUBSTR('ENAME',1,3) LIKE '_a%';
```

RPAD Function:

This function pads the right-side of a string with a specific set of characters (when string1 is not null).

Example:

```
SELECT ENAME, EMPNO, DEPTNO, SAL, RPAD(SAL,8,'$')
FROM EMP;
```

ROUND Function:

This function returns a date rounded to a specific unit of measure.

Example:

```
SELECT ENAME, ROUND(Months_between(sysdate, HIREDATE),0)
"MonthsWorked"
FROM EMP
ORDER BY ENAME ASC;
```

TO_CHAR Function:

This function converts a number or date to a string.

Example:

```
SELECT
TO_CHAR (SYSDATE,'DD/MM/YYYY ') "Date"
FROM
DUAL;
```