

PRAKTIKUM BASIS DATA

BAB : DASAR PEMROGRAMAN T-SQL
NAMA : DANI ADRIAN
NIM : 225150201111009
ASISTEN : NATHAN DAUD
RAKHA HANIF MAHESWARA
NAUFAL PUTRA SUTRISNA
STANISLAUS FRANS BERNADO

TGL PRAKTIKUM : 29/11/2023 TGL PENGUMPULAN : 01/12/2023

Pertanyaan

1. Buat *stored procedure* yang menampilkan **advisor** termasuk data **instructor** dan **student** dengan parameter nama **student** yang dicari (sebagai masukan dalam parameter *input*).

Implementasi

	<pre>USE DBSS_009 GO CREATE PROCEDURE GetAdvisor @name VARCHAR(10) AS SELECT * FROM student s JOIN advisor a ON a.s_ID = s.ID JOIN instructor i ON a.i_ID = i.ID WHERE s.name LIKE @name GO</pre>
	<pre>USE DBSS_009 EXEC GetAdvisor '%hil%'</pre>
	<pre>USE DBSS_009 EXEC GetAdvisor 'Shilv'</pre>

Tampilan Keluaran

praktikum14.sql - L...RP.master (sa (55)) SQLQuery1.sql - LA....DBSS_009 (sa (52))*

```

1  USE DBSS_009
2  GO
3
4  CREATE PROCEDURE GetAdvisor
5      @name VARCHAR(10)
6  AS
7      SELECT * FROM student s
8      JOIN advisor a ON a.s_ID = s.ID
9      JOIN instructor i ON a.i_ID = i.ID
10     WHERE s.name LIKE @name
11  GO
12

```

110 %

Messages

Commands completed successfully.

Completion time: 2023-12-01T20:39:26.4463571+07:00

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100% Window

praktikum14.sql - L...RP.master (sa (55)) SQLQuery1.sql - LA....DBSS_009 (sa (52))*

```

1  USE DBSS_009
2
3  EXEC GetAdvisor '%hil%'
4

```

110 %

Results Messages

	ID	name	dept_name	tot_cred	s_ID	i_ID	ID	name	dept_name	salary
1	10269	Hilberg	Psychology	75	10269	15347	15347	Bawa	Athletics	72140.88
2	14829	Philippe	Accounting	105	14829	52647	52647	Bancilhon	Pol. Sci.	87958.01
3	35220	Shilv	History	58	35220	80759	80759	Queiroz	Biology	45538.32
4	46451	Chilu	Pol. Sci.	123	46451	90643	90643	Choll	Statistics	57807.09
5	52656	Phillips	Psychology	6	52656	80759	80759	Queiroz	Biology	45538.32
6	68712	Hill	Civil Eng.	30	68712	57180	57180	Hau	Accounting	43966.29
7	74840	Schill	Biology	116	74840	22591	22591	D'Agostino	Psychology	59706.49
8	83622	Achilles	Elec. Eng.	57	83622	74420	74420	Voronina	Physics	121141.99
9	914	Schill	Comp. Sci.	32	914	95030	95030	Arinb	Statistics	54805.11

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100% Window

praktikum14.sql - L...RP.master (sa (55)) SQLQuery1.sql - LA...DBSS_009 (sa (52))*

```

1 USE DBSS_009
2
3 EXEC GetAdvisor 'Shilv'
4

```

110 %

Results Messages

	ID	name	dept_name	tot_cred	s_ID	i_ID	ID	name	dept_name	salary
1	35220	Shilv	History	58	35220	80759	80759	Queiroz	Biology	45538.32

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Pembahasan dan Analisis

Nama : Dani Adrian

Nim : 225150201111009

Perintah diatas digunakan Untuk membuat stored procedure yang menampilkan advisor termasuk data instructor dan student dengan parameter nama student yang dicari (sebagai masukan dalam parameter input).

• CREATE PROCEDURE

Untuk membuat stored procedure baru bernama GetAdvisor

• @name Varchar(10)

Untuk membuat Variabel baru dgn nama @name dan tipe data VARCHAR(10)

• SELECT (query)

Untuk mengambil seluruh data yang diambil dari hasil join antara table student dan table advisor dimana ID pada table student sama dengan s_ID pada table advisor dan JOIN antara table student dan table instructor dimana ID pada table instructor sama dengan i_ID pada table advisor.

• WHERE s.name LIKE @name

data yang diambil adalah data yang memiliki nama pada table student sama dengan @name / mengandung karakter @name

• EXEC GetAdvisor

mengeksekusi stored procedure dengan @name dengan nama student mengandung karakter hilv atau juga student bernama Shilv

Pertanyaan

2. Buat stored *procedure* yang menampilkan kuliah yang diambil pada tabel **takes** termasuk data **student** dengan parameter nama **student** yang dicari (sebagai masukan dalam parameter *input*).

Implementasi

	<pre>USE DBSS_009 GO CREATE PROCEDURE GetTakes @name VARCHAR(10) AS SELECT * FROM student s JOIN takes t ON s.ID = t.ID WHERE s.name LIKE @name GO</pre>
	<pre>USE DBSS_009 EXEC GetTakes '%hil%'</pre>
	<pre>USE DBSS_009 EXEC GetTakes 'Shilv'</pre>

Tampilan Keluaran

The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows the execution of a stored procedure named `GetTakes` in the `DBSS_009` database. The code is as follows:

```
1  USE DBSS_009
2  GO
3  CREATE PROCEDURE GetTakes
4      @name VARCHAR(10)
5  AS
6      SELECT * FROM student s
7      JOIN takes t ON s.ID = t.ID
8      WHERE s.name LIKE @name
9  GO
```

The bottom pane shows the output of the stored procedure, which is a text file named `Dani Adrian.txt`. The output contains the following information:

```
Dani Adrian
225150201111009
```

The status bar at the bottom indicates that the commands were completed successfully and provides the completion time: `2023-12-01T20:42:14.1716875+07:00`.

praktikum14.sql - L...RP.master (sa (55))

SQLQuery1.sql - LA...DBSS_009 (sa (52))*

1 USE DBSS_009

2

3 EXEC GetTakes '%hil%'

110 %

Results Messages

	ID	name	dept_name	tot_cred	ID	course_id	sec_id	semester	year	score	grade
1	10269	Hilberg	Psychology	75	10269	237	2	Fall	2009	83	A-
2	10269	Hilberg	Psychology	75	10269	352	1	Spring	2006	51	C-
3	10269	Hilberg	Psychology	75	10269	362	2	Fall	2006	73	B
4	10269	Hilberg	Psychology	75	10269	408	2	Spring	2003	63	C+
5	10269	Hilberg	Psychology	75	10269	421	1	Fall	2004	66	B-
6	10269	Hilberg	Psychology	75	10269	489	1	Fall	2007	83	A-
7	10269	Hilberg	Psychology	75	10269	631	1	Spring	2007	76	B+
8	10269	Hilberg	Psychology	75	10269	702	1	Spring	2001	99	A+
9	10269	Hilberg	Psychology	75	10269	704	1	Spring	2008	50	C-
10	10269	Hilberg	Psychology	75	10269	893	1	Fall	2007	73	B
11	14829	Philippe	Accounting	105	14829	105	1	Fall	2009	73	B
12	14829	Philippe	Accounting	105	14829	338	2	Spring	2006	78	B+
13	14829	Philippe	Accounting	105	14829	362	1	Fall	2005	93	A+
14	14829	Philippe	Accounting	105	14829	376	1	Fall	2006	62	C+
15	14829	Philippe	Accounting	105	14829	415	1	Fall	2010	88	A
16	14829	Philippe	Accounting	105	14829	443	2	Spring	2002	65	B-
17	14829	Philippe	Accounting	105	14829	445	1	Spring	2001	70	B
18	14829	Philippe	Accounting	105	14829	486	1	Fall	2009	98	A+
19	14829	Philippe	Accounting	105	14829	489	1	Fall	2007	98	A+
20	14829	Philippe	Accounting	105	14829	545	1	Fall	2001	83	A-
21	14829	Philippe	Accounting	105	14829	603	1	Fall	2003	70	B
22	14829	Philippe	Accounting	105	14829	612	1	Fall	2007	77	B+
23	14829	Philippe	Accounting	105	14829	626	1	Fall	2006	72	B
24	14829	Philippe	Accounting	105	14829	663	1	Spring	2005	79	B+
25	14829	Philippe	Accounting	105	14829	694	1	Fall	2002	79	B+
26	14829	Philippe	Accounting	105	14829	802	1	Spring	2003	69	B-
27	14829	Philippe	Accounting	105	14829	867	1	Fall	2006	67	B-
28	14829	Philippe	Accounting	105	14829	867	2	Fall	2010	93	A+
29	35220	Shilv	History	58	35220	105	1	Fall	2009	59	C
30	35220	Shilv	History	58	35220	200	2	Fall	2002	70	B

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100%

Query executed successfully.

praktikum14.sql - L...RP.master (sa (55)) SQLQuery1.sql - LA....DBSS_009 (sa (52))*

```

1  USE DBSS_009
2
3  EXEC GetTakes 'shilv'

```

110 %

Results Messages

	ID	name	dept_name	tot_cred	ID	course_id	sec_id	semester	year	score	grade
1	35220	Shilv	History	58	35220	105	1	Fall	2009	59	C
2	35220	Shilv	History	58	35220	200	2	Fall	2002	70	B
3	35220	Shilv	History	58	35220	237	1	Spring	2008	82	A-
4	35220	Shilv	History	58	35220	239	1	Fall	2006	79	B+
5	35220	Shilv	History	58	35220	400	2	Fall	2003	71	B
6	35220	Shilv	History	58	35220	408	2	Spring	2003	64	C+
7	35220	Shilv	History	58	35220	445	1	Spring	2001	78	B+
8	35220	Shilv	History	58	35220	482	1	Fall	2005	50	C-
9	35220	Shilv	History	58	35220	591	1	Spring	2005	56	C
10	35220	Shilv	History	58	35220	604	1	Spring	2009	82	A-
11	35220	Shilv	History	58	35220	631	1	Spring	2007	70	B
12	35220	Shilv	History	58	35220	663	1	Spring	2005	86	A
13	35220	Shilv	History	58	35220	702	1	Spring	2001	83	A-
14	35220	Shilv	History	58	35220	843	1	Fall	2010	84	A-
15	35220	Shilv	History	58	35220	852	1	Spring	2008	93	A+
16	35220	Shilv	History	58	35220	867	1	Fall	2006	87	A
17	35220	Shilv	History	58	35220	960	1	Fall	2009	53	C-

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100%

Pembahasan dan Analisis

Nama : Dani Adrion

Nim : 225150201111009

Perintah diatas digunakan untuk membuat stored procedure yang menampilkan Kuliah yang diambil pada table takes termasuk data student dengan parameter nama student yang dicari (Sebagai masukan dalam parameter input)

• Perintah `SELECT * FROM (tabel 1) JOIN (tabel 2) ON (persamaan pk dan fk)`

Untuk mengambil seluruh data yang diambil dari hasil JOIN antara table student dan table takes dimana ID pada table student sama dengan ID pada table takes.

Pertanyaan

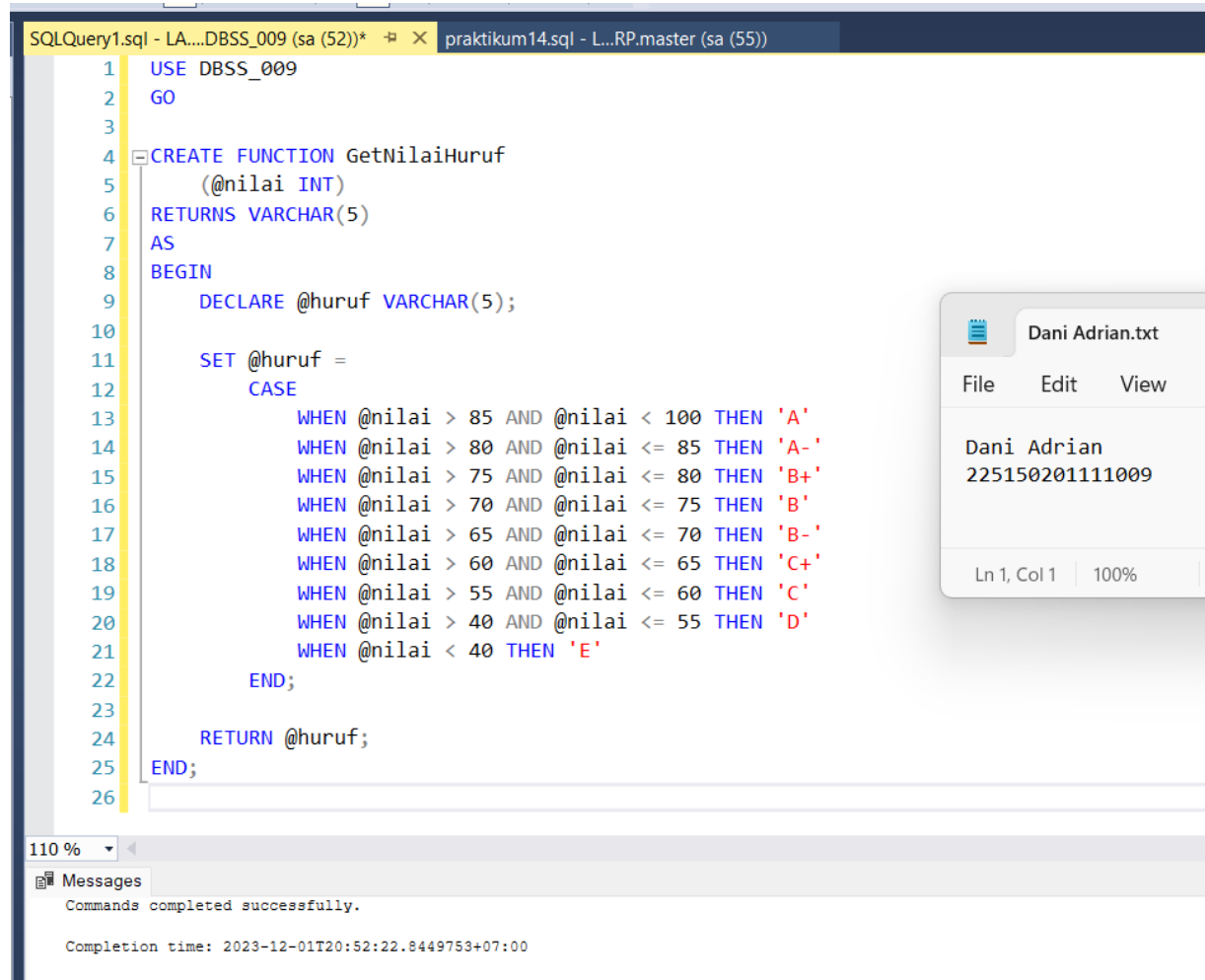
3. Buat fungsi `GetNilaiHuruf` untuk mengembalikan nilai akhir huruf dari nilai angka dengan ketentuan sebagai berikut.

No	Rentang nilai angka	Nilai Huruf
1	85 < nilai < 100	A
2	80 < nilai <= 85	A-
3	75 < nilai <= 80	B+
4	70 < nilai <= 75	B
5	65 < nilai <= 70	B-
6	60 < nilai <= 65	C+
7	55 < nilai <= 60	C
8	40 < nilai <= 55	D
9	Nilai < 40	E

Implementasi

	<pre> USE DBSS_009 GO CREATE FUNCTION GetNilaiHuruf (@nilai INT) RETURNS VARCHAR(5) AS BEGIN DECLARE @huruf VARCHAR(5); SET @huruf = CASE WHEN @nilai > 85 AND @nilai < 100 THEN 'A' WHEN @nilai > 80 AND @nilai <= 85 THEN 'A-' WHEN @nilai > 75 AND @nilai <= 80 THEN 'B+' WHEN @nilai > 70 AND @nilai <= 75 THEN 'B' WHEN @nilai > 65 AND @nilai <= 70 THEN 'B-' WHEN @nilai > 60 AND @nilai <= 65 THEN 'C+' WHEN @nilai > 55 AND @nilai <= 60 THEN 'C' WHEN @nilai > 40 AND @nilai <= 55 THEN 'D' WHEN @nilai < 40 THEN 'E' END; RETURN @huruf; END; </pre>
	<pre> USE DBSS_009 SELECT dbo.GetNilaiHuruf(82) AS nilai_huruf </pre>
	<pre> USE DBSS_009 SELECT score, dbo.GetNilaiHuruf(score) AS nilai_huruf FROM takes </pre>

Tampilan Keluaran

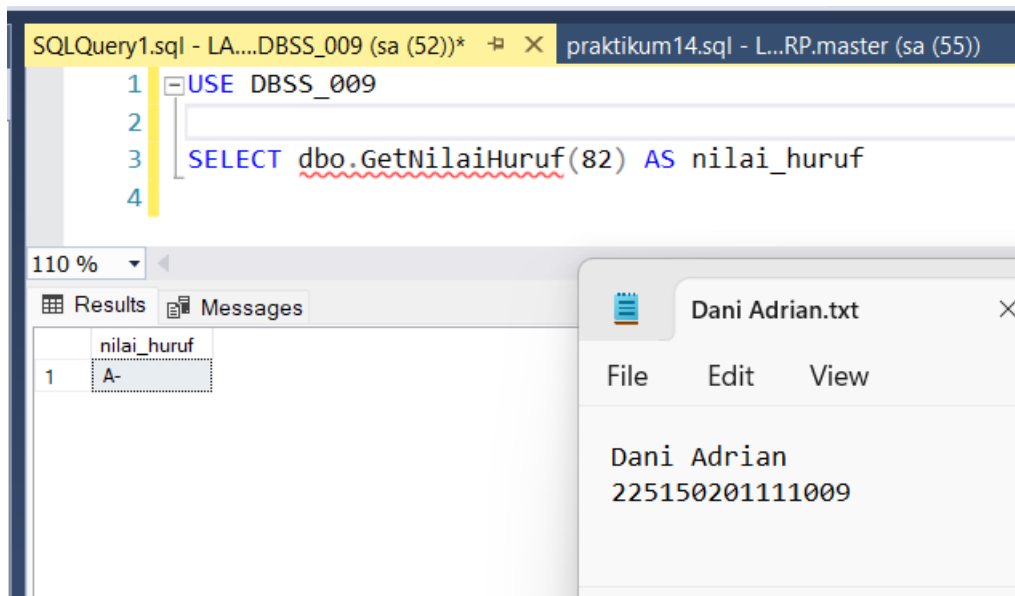


The screenshot displays the SQL Server Enterprise Manager interface. The main window shows a SQL script in the 'SQLQuery1.sql' file. The script defines a function named 'GetNilaiHuruf' that takes an integer parameter '@nilai' and returns a varchar(5) value. The function uses a CASE statement to map numerical ranges to letter grades: 85-100 to 'A', 80-85 to 'A-', 75-80 to 'B+', 70-75 to 'B', 65-70 to 'B-', 60-65 to 'C+', 55-60 to 'C', 40-55 to 'D', and values below 40 to 'E'. The script concludes with 'END;'.

```
1 USE DBSS_009
2 GO
3
4 CREATE FUNCTION GetNilaiHuruf
5   (@nilai INT)
6 RETURNS VARCHAR(5)
7 AS
8 BEGIN
9   DECLARE @huruf VARCHAR(5);
10
11   SET @huruf =
12     CASE
13       WHEN @nilai > 85 AND @nilai < 100 THEN 'A'
14       WHEN @nilai > 80 AND @nilai <= 85 THEN 'A-'
15       WHEN @nilai > 75 AND @nilai <= 80 THEN 'B+'
16       WHEN @nilai > 70 AND @nilai <= 75 THEN 'B'
17       WHEN @nilai > 65 AND @nilai <= 70 THEN 'B-'
18       WHEN @nilai > 60 AND @nilai <= 65 THEN 'C+'
19       WHEN @nilai > 55 AND @nilai <= 60 THEN 'C'
20       WHEN @nilai > 40 AND @nilai <= 55 THEN 'D'
21       WHEN @nilai < 40 THEN 'E'
22     END;
23
24   RETURN @huruf;
25 END;
26
```

Below the script, the 'Messages' window shows the status: 'Commands completed successfully.' and 'Completion time: 2023-12-01T20:52:22.8449753+07:00'.

On the right side, a text editor window titled 'Dani Adrian.txt' is open, displaying the text: 'Dani Adrian' followed by '225150201111009' on the next line. The editor shows 'Ln 1, Col 1' and '100%' zoom.



The screenshot shows the same SQL Server Enterprise Manager interface. The main window now displays a query that calls the function: 'SELECT dbo.GetNilaiHuruf(82) AS nilai_huruf'. The 'Results' window at the bottom shows a single row with the value 'A-' in the column 'nilai_huruf'.

```
1 USE DBSS_009
2
3 SELECT dbo.GetNilaiHuruf(82) AS nilai_huruf
4
```

	nilai_huruf
1	A-

The 'Messages' window remains open, showing the same success message. The 'Dani Adrian.txt' text editor window is still open on the right, showing the same text: 'Dani Adrian' and '225150201111009'.

SQLQuery1.sql - LA....DBSS_009 (sa (52))* X praktikum14.sql - L...RP.master (sa (55))

```
1 USE DBSS_009
2
3 SELECT score, dbo.GetNilaiHuruf(score) AS nilai_huruf FROM takes
4
```

110 %

Results Messages

	score	nilai_huruf
1	57	C
2	77	B+
3	91	A
4	75	B
5	80	B+
6	61	C+
7	52	D
8	64	C+
9	72	B
10	85	A-
11	62	C+
12	78	B+
13	69	B-
14	76	B+
15	74	B
16	50	D
17	88	A
18	58	C
19	88	A
20	84	A-
21	51	D
22	76	B+
23	54	D
24	56	C
25	53	D
26	56	C
27	54	D
28	70	B-
29	81	A-
30	69	B-

Dani Adrian.txt X +

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100% Windows (CRLF)

Pembahasan dan Analisis

Nama : Dani Adrian

NIM : 225150201111009

Perintah diatas digunakan Untuk membuat fungsi GetNilaiHuruf Untuk mengembalikan nilai akhir huruf dari nilai angka dengan ketentuan tertentu.

o CREATE FUNCTION

Untuk membuat fungsi baru, bernama GetNilaiHuruf

o @nilai INT

Untuk membuat Variabel baru, bernama @nilai dengan tipe data INT

o RETURNS VARCHAR (5)

Untuk menentukan tipe data kembalian

o DECLARE @huruf VARCHAR (5)

Untuk mendeklarasikan Variabel @huruf yang memiliki tipe data VARCHAR (5)

o SET @huruf

Untuk mengatur nilai huruf sesuai dengan kondisi yang berlaku

o CASE... WHEN

Menyeleksi kondisi dari nilai @nilai

o Return @huruf

Menentukan nilai kembalian

Pertanyaan

4. Gunakan fungsi di atas untuk mencari data kuliah yang diambil (pada tabel **takes**) beserta data **student** dengan yang memiliki nilai A dan A- dengan memanfaatkan fungsi GetNilaiHuruf. Contoh penggunaannya pada klausa SELECT/WHERE adalah **GetNilaiHuruf(score)**.

Implementasi

```
USE DBSS_009
SELECT s.ID, s.name, s.dept_name, t.course_id, t.sec_id,
t.semester, t.year, t.score, dbo.GetNilaiHuruf(score) AS
nilai_huruf
FROM takes t JOIN student s ON s.ID = t.ID
WHERE dbo.GetNilaiHuruf(score) LIKE 'A' OR
dbo.GetNilaiHuruf(score) LIKE 'A-'
```

Tampilan Keluaran

SQLQuery1.sql - LA...DBSS_009 (sa (52)) * X praktikum14.sql - L...RP.master (sa (55))

```

1 USE DBSS_009
2
3 SELECT s.ID, s.name, s.dept_name, t.course_id, t.sec_id, t.semester, t.year, t.score, dbo.GetNilaiHuruf(score) AS nilai_huruf
4 FROM takes t JOIN student s ON s.ID = t.ID
5 WHERE dbo.GetNilaiHuruf(score) LIKE 'A' OR dbo.GetNilaiHuruf(score) LIKE 'A-'
6

```

110 %

Results Messages

ID	name	dept_name	course_id	sec_id	semester	year	score	nilai_huruf
1000	Manber	Civil Eng.	359	2	Spring	2007	91	A
1000	Manber	Civil Eng.	748	1	Fall	2003	85	A-
10033	Zelly	Mech. Eng.	338	1	Spring	2007	88	A
10033	Zelly	Mech. Eng.	352	1	Spring	2006	88	A
10033	Zelly	Mech. Eng.	362	3	Spring	2008	84	A-
10033	Zelly	Mech. Eng.	604	1	Spring	2009	81	A-
10033	Zelly	Mech. Eng.	679	1	Spring	2010	98	A
10033	Zelly	Mech. Eng.	692	1	Spring	2010	86	A
10033	Zelly	Mech. Eng.	702	1	Spring	2001	89	A
10076	Duan	Civil Eng.	482	1	Fall	2005	90	A
10076	Duan	Civil Eng.	559	1	Fall	2002	91	A
10076	Duan	Civil Eng.	663	1	Spring	2005	87	A
10076	Duan	Civil Eng.	692	1	Spring	2010	83	A-
10076	Duan	Civil Eng.	696	1	Spring	2002	84	A-
10076	Duan	Civil Eng.	747	1	Spring	2004	97	A
1018	Colin	Civil Eng.	105	1	Fall	2009	85	A-
1018	Colin	Civil Eng.	158	1	Fall	2008	81	A-
1018	Colin	Civil Eng.	274	1	Fall	2002	94	A
1018	Colin	Civil Eng.	338	1	Spring	2007	86	A
1018	Colin	Civil Eng.	482	1	Fall	2005	97	A
1018	Colin	Civil Eng.	599	1	Spring	2003	91	A
10204	Mediratta	Geology	169	1	Spring	2007	84	A-
10204	Mediratta	Geology	237	2	Fall	2009	84	A-
10204	Mediratta	Geology	735	2	Spring	2010	85	A-
10204	Mediratta	Geology	875	1	Spring	2005	99	A
10267	Rzecz	Comp. Sci.	237	2	Fall	2009	95	A
10267	Rzecz	Comp. Sci.	366	1	Fall	2005	82	A-
10267	Rzecz	Comp. Sci.	545	1	Fall	2001	90	A

Query executed successfully.

LAPTOP-3UB09HRP (16.0 RTM) sa (52) DBSS_009

Dani Adrian.txt

File Edit View

Dani Adrian
225150201111009

Ln 1, Col 1 100% Windows (CRLF) UTF-8

Pembahasan dan Analisis

Nama : Dani Adrian

NIM : 225150201111009

Perintah diatas digunakan Untuk mencari data kuliah yang diambil (pada table takes) beserta data student dengan nilai A dan A- memanfaatkan fungsi GetNilaiHuruf.

o SELECT (atribut)

Mengambil data dari kolom ID, name, dan dept_name pada table student. Kolom course_id, sec_id, semester, year, score pada table takes. Serta, memanggil GetNilaiHuruf dengan input data dari kolom score pada table takes yang hasilnya diempen dalam kolom nilai_huruf

o GetNilaiHuruf(score) LIKE 'A-'

Data yang diambil memiliki syarat dbo.GetNilaiHuruf(score) sama dgn / mengandung karakter 'A' / 'A-'.