# PowerSchool Customization #4 - SQL and Using sqlReports

PSUG
MIDDLE EAST

# https://goo.gl/xyKDXT

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Link (or scan the code) to get a Google copy of this presentation.

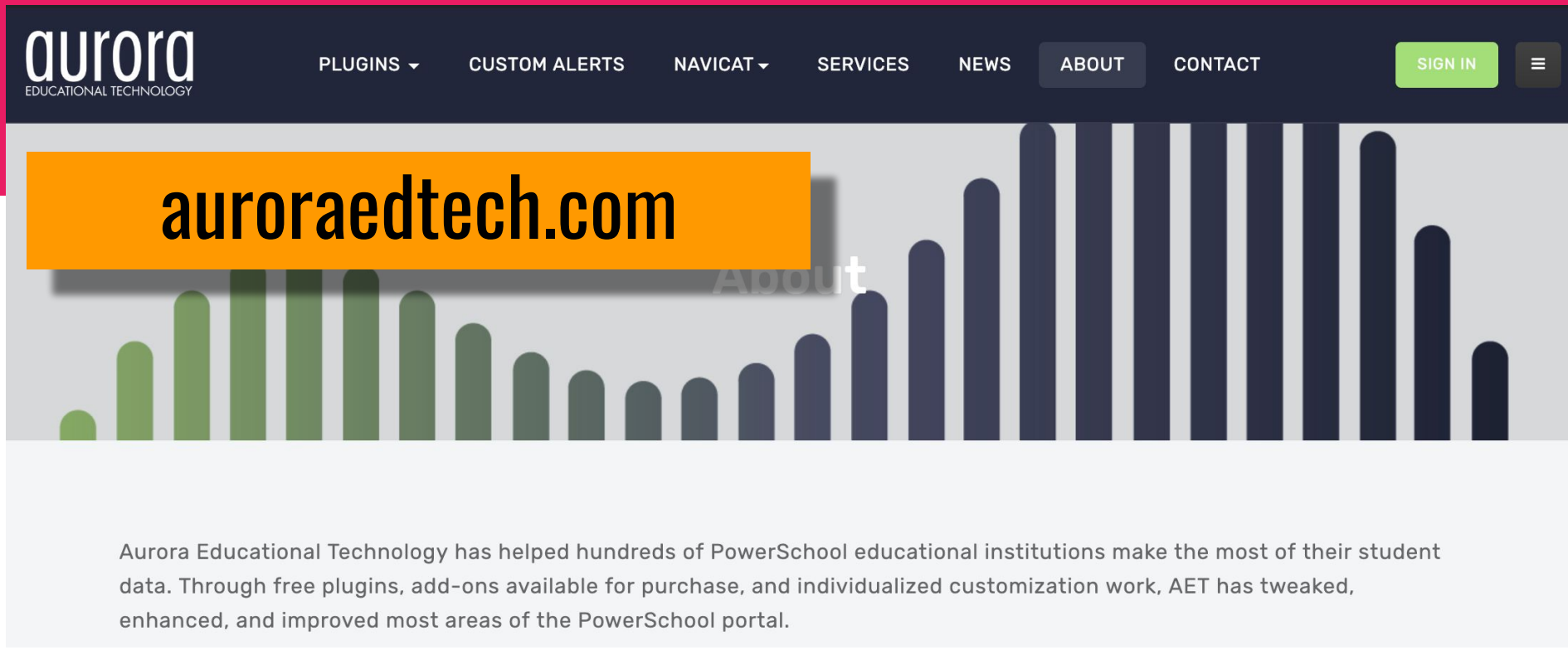
Also posted at psugcal.org (via the "Customization" link)

# PowerSchool Customization #4 - SQL and Using sqlReports

PSUG MIDDLE EAST

# CREDITS

## thanks to Adam Larsen of Aurora Educational Technology for most of the content



# Tools to develop SQL queries

- Queries can take time to write and troubleshoot.
- A tool to directly query the database is important before you embed your SQL query in its final location.

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# Oracle SQL Developer

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- Two downloads
  - Oracle SQL Developer
  - Java Development Kit (JDK)

- Available from Oracle for free at: http://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html

- Requires internal or VPN connection to the database, can be problematic if hosted

# Oracle SQL Developer

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Installation instructions

- Run Java Development Kit (JDK) Installer
  - Will also install Java Runtime Environment (JRE)
  - Install JDK into any location
  - Recommended: C:\Program Files\jdk[version number]
- Unpack Oracle SQL Developer into any location
  - Recommended: C:\Program Files\Oracle SQL Developer
- Run sqldeveloper.exe
- Program will prompt you for location of JDK
  - Navigate to location you specified when installing JDK

# Oracle SQL Developer

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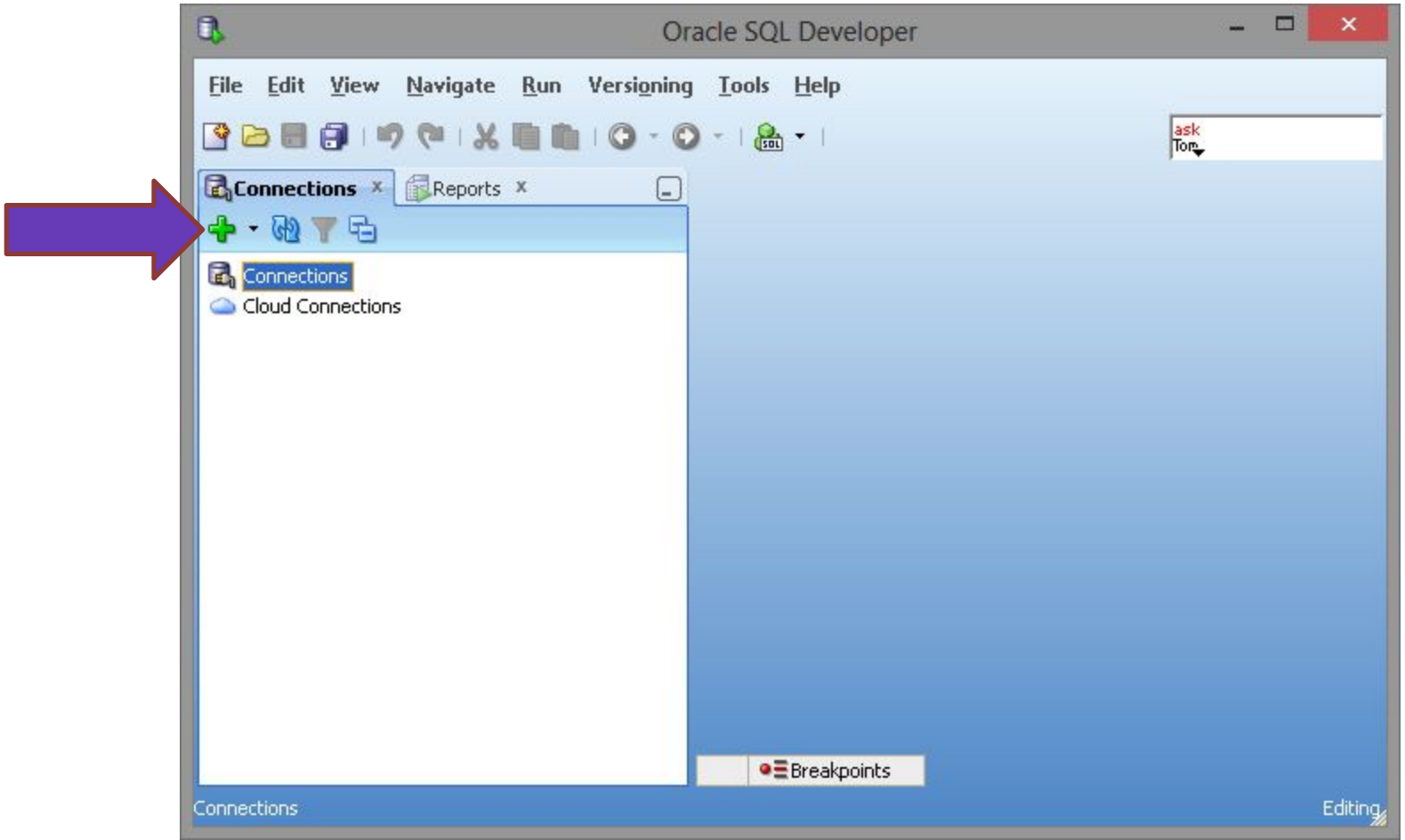
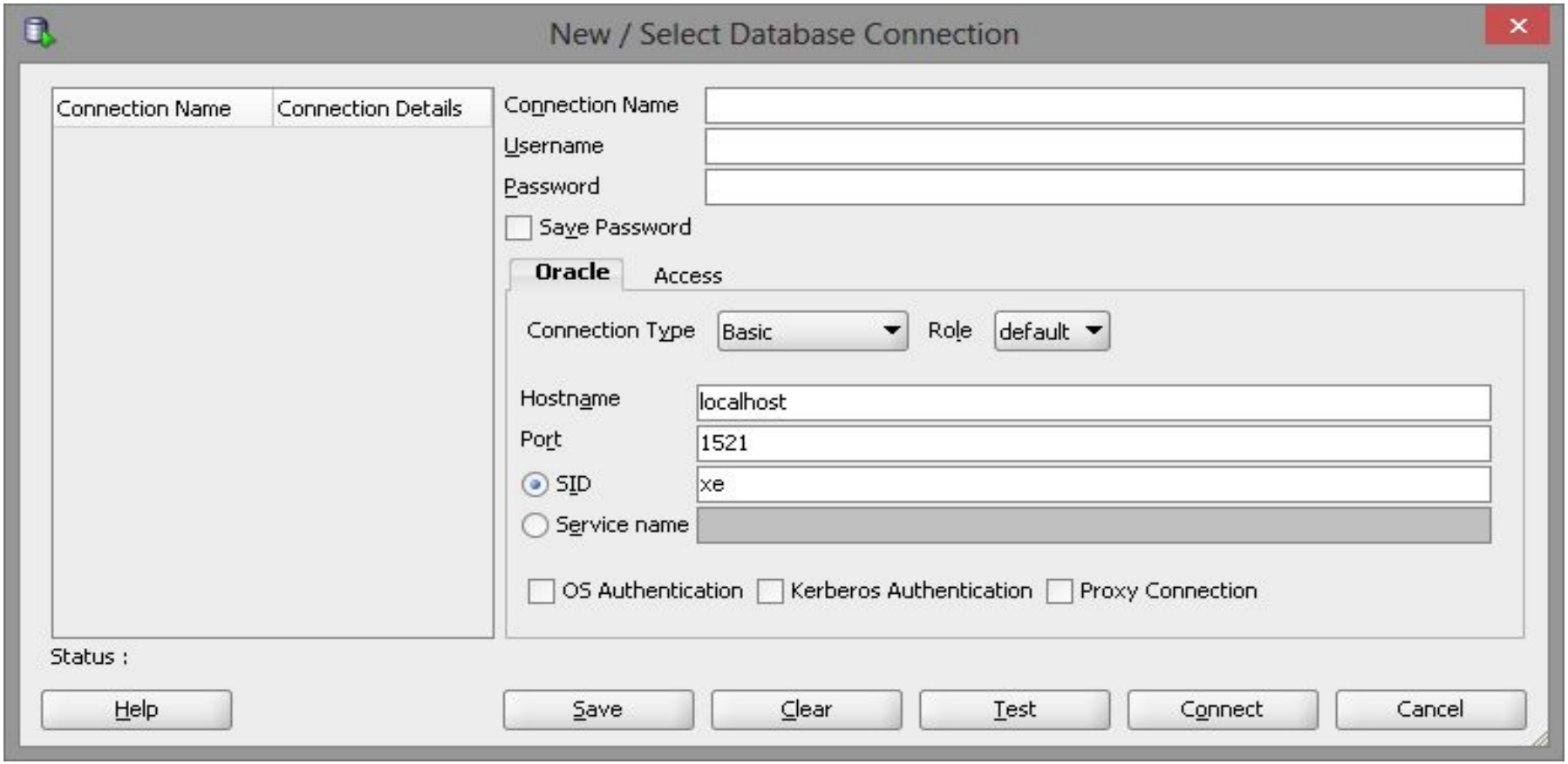
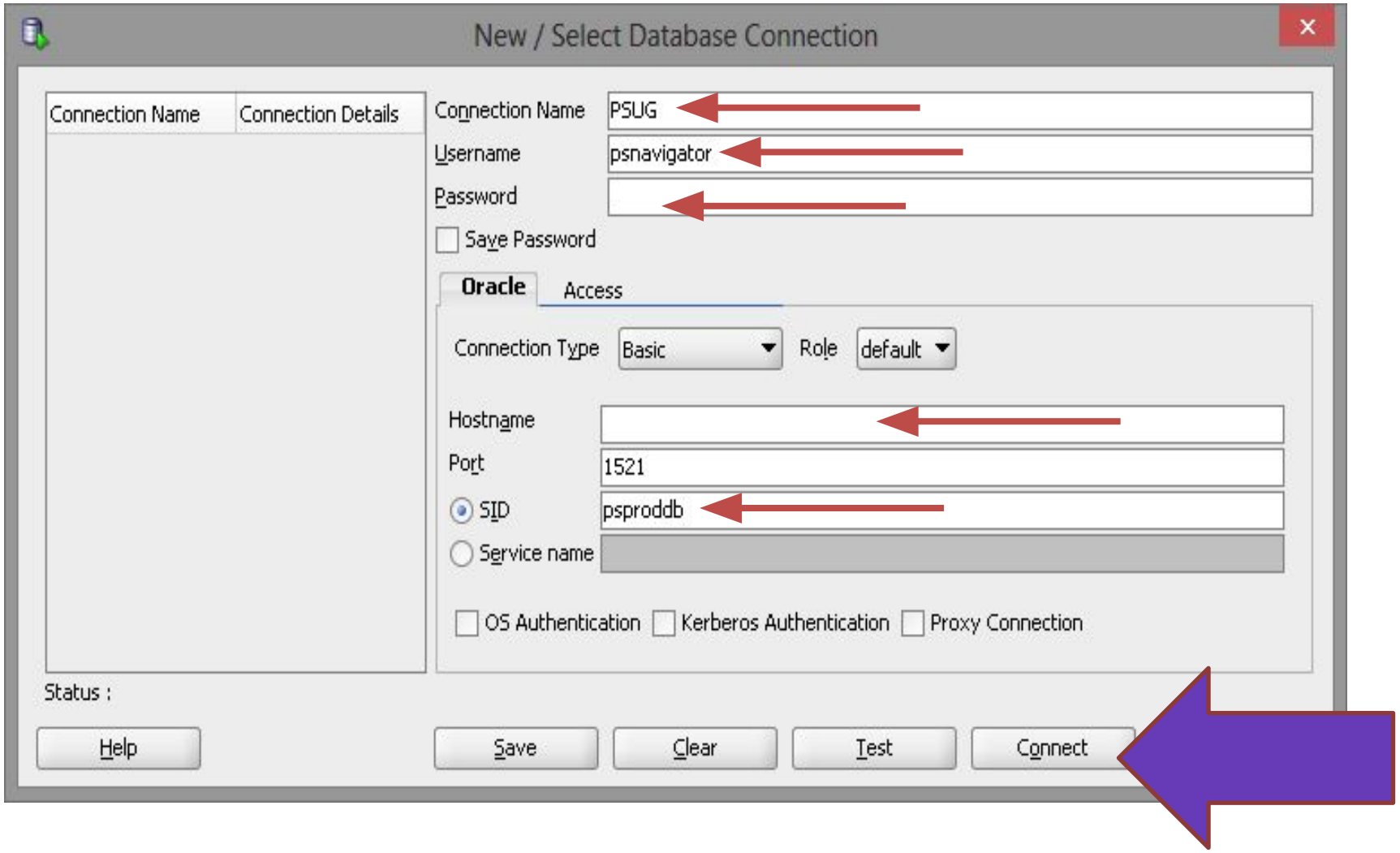
Configuration instructions

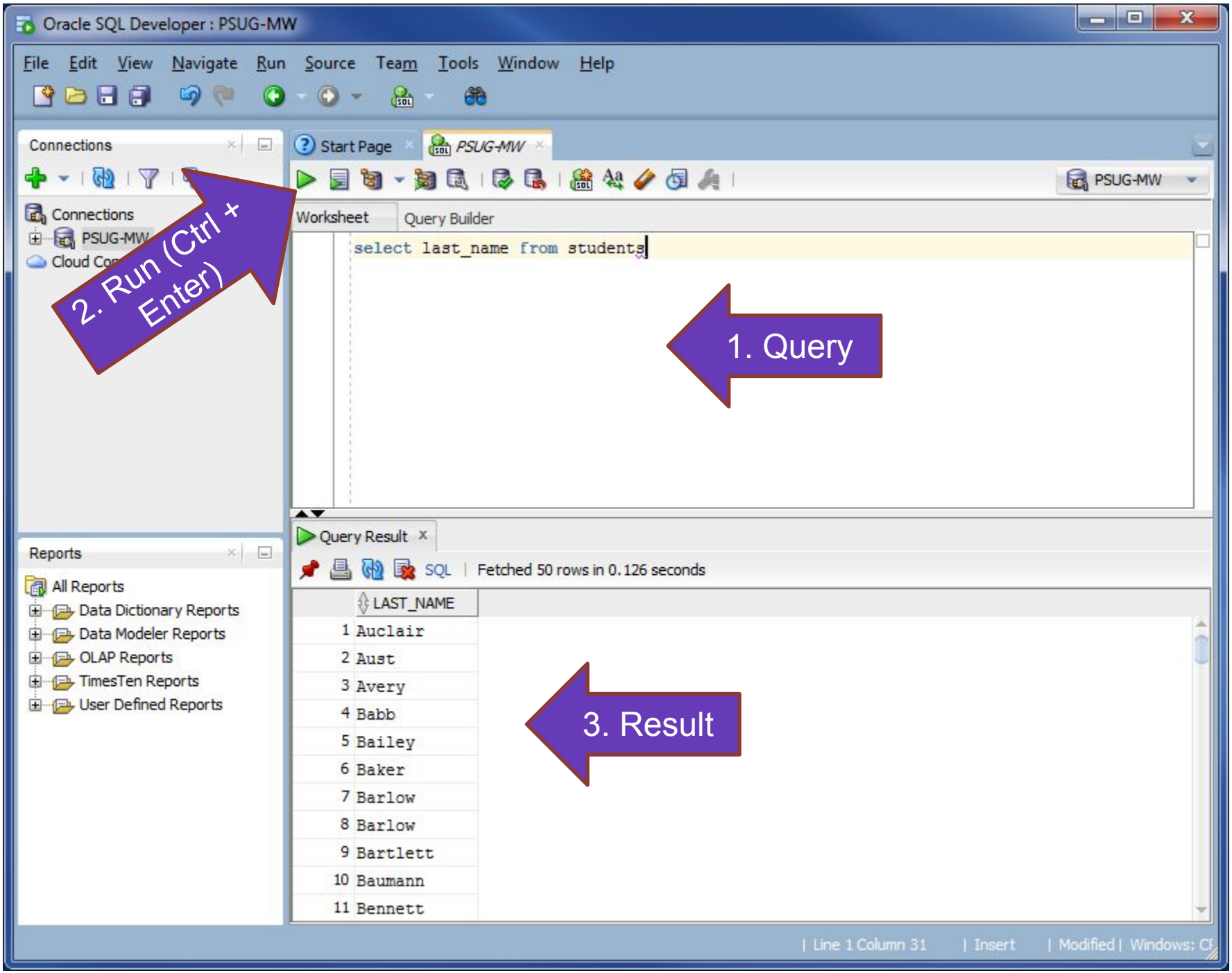


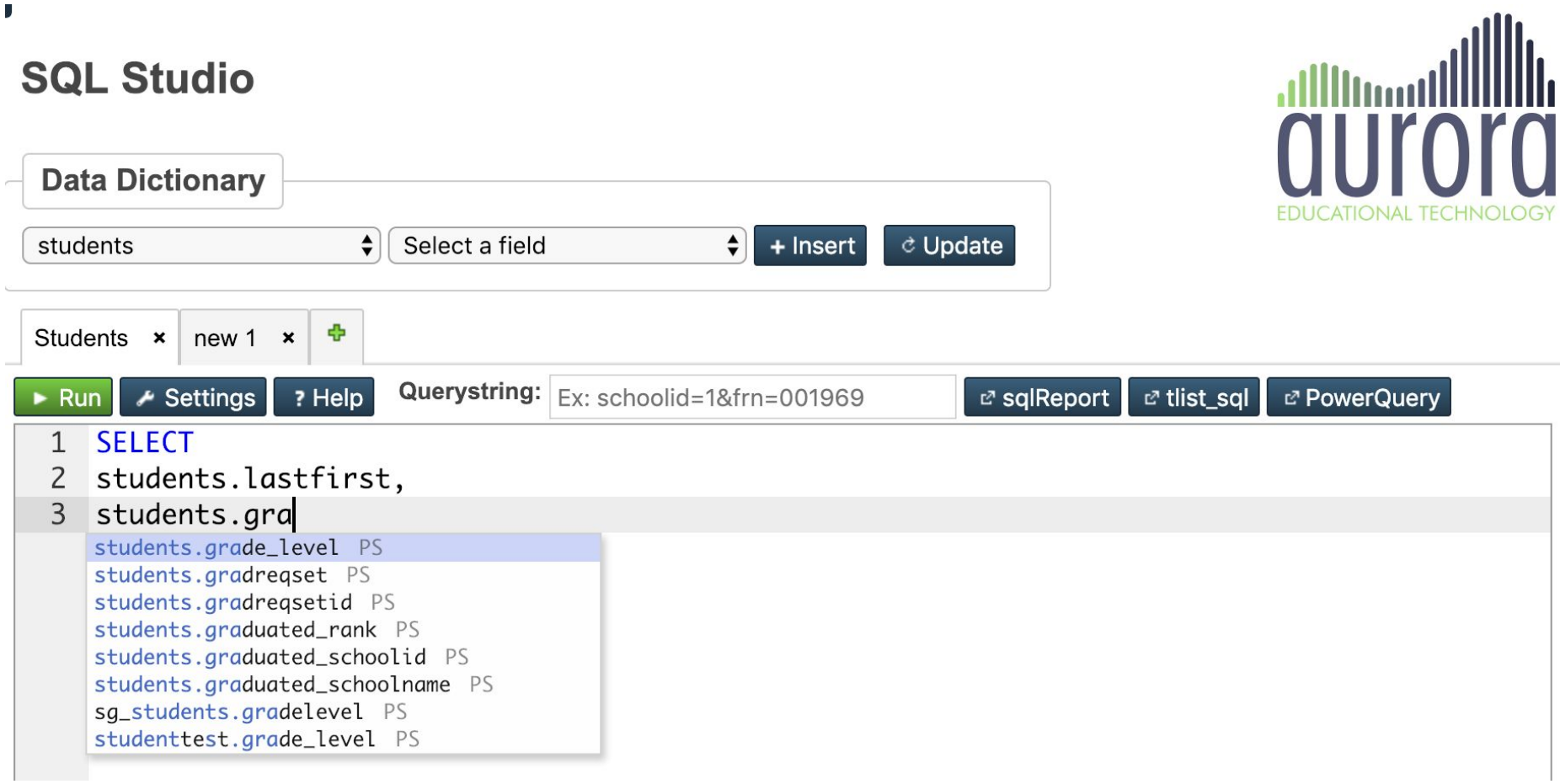
# Oracle SQL Developer



# Oracle SQL Developer




Oracle SQL Developer : PSUG-MW
File Edit View Navigate Run Source Team Tools Window Help
Connections
Connections
PSUG-MW
Cloud Co
2. Run (Ctrl + Enter)
Start Page
PSUG-MW
PSUG-MW
Worksheet
Query Builder
select last_name from students
1. Query
Reports
All Reports
Data Dictionary Reports
Data Modeler Reports
OLAP Reports
TimesTen Reports
User Defined Reports
Query Result
SQL
Fetched 50 rows in 0.126 seconds
LAST_NAME
1 Auclair
2 Aust
3 Avery
4 Babb
5 Bailey
6 Baker
7 Barlow
8 Barlow
9 Bartlett
10 Baumann
11 Bennett
3. Result
Line 1 Column 31
Insert
Modified
Windows: Cr




- Soon to be released!
- Embedded in PowerSchool

# SQL Studio

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- SOON TO BE RELEASED at **auroraedtech.com**
- Web-based GUI for developing SQL queries
- No VPN needed
- Works with hosted customers
- Access to entire data dictionary, including views
- Autocomplete tables and fields
- Add querystring variables and PSHTML
- Export to sqlReports template, tlist_sql or PowerQuery
- Library of sql queries
- Built-in Data Dictionary

**auroraedtech.com**

# Test Server

---

**URL:** pstest.psugcal.org/admin

**User:** XXaghs1

**Pwd:** aghs1

**XX=** number between 01 and 99

(example: 25aghs1)

PowerSchool

Welcome, **51 z51** | Help | Sign Out

**School:** Apple Grove High School **Term:** 18-19 Semester 2

Start Page > System Administrator > SQL Studio

## Functions

- Attendance
- Daily Bulletin
- Enrollment Summary
- Master Schedule
- Dashboard
- Special Functions
- Teacher Schedules

## Reports

- System Reports
- ReportWorks

## People

- Student Search
- Staff Search
- Contact Search
- Enroll New Student
- New Staff Entry
- New Contact Entry

## Setup

- School
- System
- Personalize

# SQL Studio

aurora EDUCATIONAL TECHNOLOGY

## Data Dictionary

Select a table | Select a table | + Insert | Update

new 1 ×

▶ Run | Settings | ? Help | Querystring: Ex: schoolid=1&frn=001969 | tlist_sql | PowerQuery

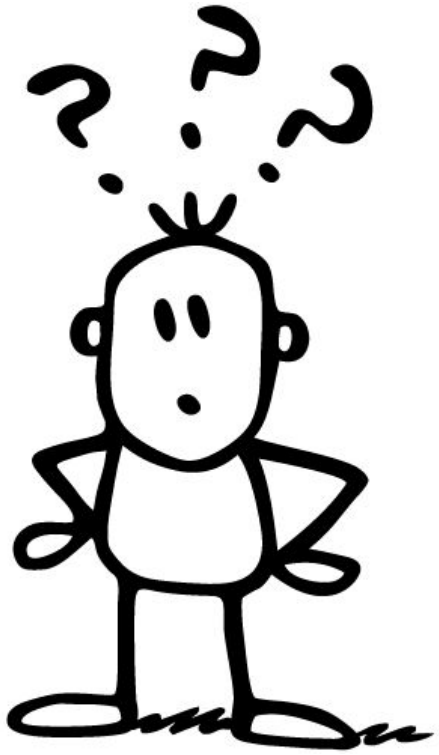
```
1  SELECT
2  name
3
4  FROM
5  schools
```

Returned 30 row(s)

Copy Data

| name |
|---|
| Graduated Students |
| Apple Grove High School 3 |
| Apple Grove High School |
| Apple Grove High School 2 |
| Scheduling High School 1 |
| Cherry Hill Middle School |
| Washington Elementary |

# What is SQL?



# What is SQL?

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- **S**tructured **Q**uery **L**anguage
- ANSI-standard language used to interact with relational databases
  - Still comes in a few flavors (MySQL, **Oracle**, MSSQL)
- Performs four chief functions (CRUD):
  - Create
  - Read
  - Update
  - Delete

# SQL and PowerSchool

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- Oracle flavor of SQL
- SQL is *the fastest* way to extract data from PowerSchool
- Can only read from the Oracle database
  - Create, update, and delete violate the Terms of Service with Pearson
  - Support might not be able to help you when you mess something up

# Getting Started

# How do I get started?

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- psnavigator Oracle account
  - Configured in System
- Software options
  - Oracle SQL Developer
    - oss.oracle.com/sqldeveloper.html
    - Good
      - Free
      - Can schedule jobs
      - No addition drivers needed
    - Bad
      - Requires JAVA
      - Only connects to Oracle

# How do I get started?

---

- Software options (cont.)
  - Navicat
    - Navicat.com (PremiumSoft)
    - Good
      - Free lite versions available via search
      - Can schedule jobs
      - Connects to all major databases
      - Very lightweight program - runs quickly
    - Bad
      - Need to install Oracle OCI Drivers
      - Non-commercial Premium edition is $599 USD
      - Non-commercial Oracle-only edition is $299 USD
      - Only the paid version can schedule jobs

Available from auroraedtech.com

# How do I get started?

---

- Software options (cont.)
  - SQL Server Reporting Services
    - Microsoft.com
    - Good
      - You may already license it
      - Feature-rich reporting suite
      - Can schedule jobs
    - Bad
      - Requires Microsoft overhead
      - Building reports can be complicated
      - Takes some fiddling to work with Oracle

# How do I get started?

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- Inside PowerSchool
  - sqlReports
    - sqlreports.net (Matt Freund)
    - Good
      - Embeds right into PowerSchool
      - Easy for end-users to run your queries at will
      - Can take user input when executed
      - Scheduled jobs
    - Bad
      - Not a development environment
      - Requires workarounds for queries that contain certain characters

# How do I get started?

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- Inside PowerSchool
  - Enterprise Reporting (APEX)
    - https://support.powerschool.com/article/77492
    - psugcal.org/index.php?title=Enterprise_Reporting
    - Good
      - Part of the product supported by PowerSchool
      - Easy for end-users to run your queries at will
      - Many options to use reports flexibly for different needs, including basic charting
    - Bad
      - Not a development environment
      - Not an easy development interface
      - No scheduled or emailed reports

# How do I get started?

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- Inside PowerSchool
  - PowerQueries
    - https://support.powerschool.com/developer
    - psugcal.org/index.php?title=PowerQueries
    - Good
      - Part of the product supported by PowerSchool
      - Available in Database Export Manager
      - Can be scheduled
      - Can be used by customizations and partners both internally and externally
    - Bad
      - Difficult syntax, not easy to create
      - Must be installed as a plugin

# How do I get started?

---

- Inside PowerSchool
  - In customizations using tlist_sql
    - More on this later
    - Good
      - Can be integrated directly in PS
      - Powerful customizations
    - Bad
      - Requires advanced customization skill
      - Deprecated by PowerSchool
      - Issues with security and "layering"

# How do I get started?


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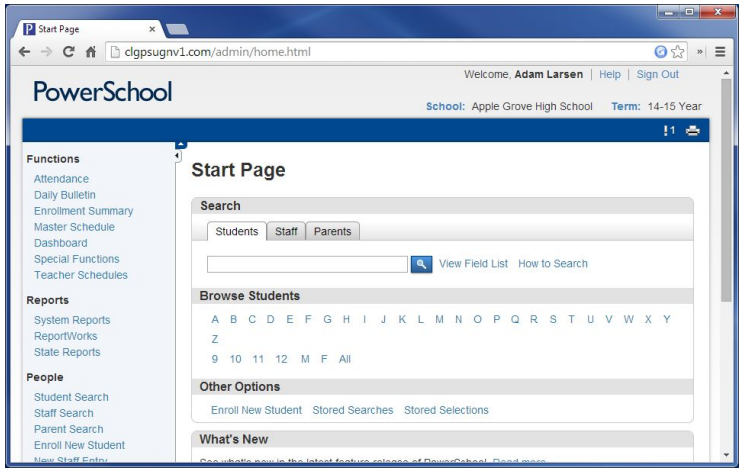
- PowerSchool Data Dictionaries
  - https://support.powerschool.com/dir/5933
  - (Start with Data Dictionary Tables)
  - As of 12.1.1 they are online via the Help menu

- Tech on the Net
  - http://www.techonthenet.com/sql/index.php

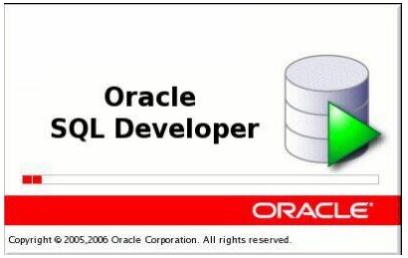
- W3 Schools
  - http://www.w3schools.com/sql

# Database Intro

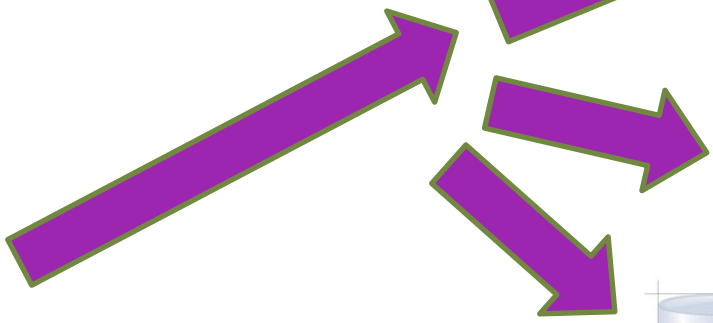
# Where is the database?








Microsoft® SQL Server®
Reporting Services

ORACLE
Application Express

## sqlReports Overview

Since 2009, PowerSchool users have been able to easily c
called sqlReports. Dean Dahlvang released a free PowerS
reporting add-on that can turn simple to medium sql querie
anywhere in the database, and it became one of the most
release newer versions, with sqlReports 3 being the last on

# Relational Databases

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- **Are sort of like an Excel spreadsheet**
  - Store data in tables
  - Have different data types
  - Can be searched

- **Are not at all like an Excel spreadsheet**
  - Tables only store the data they need
  - Unique identifiers link tables together
  - The results of a query may come from several tables at once

# SELECT Statement

```
SELECT
somestuff
FROM
somewhere
```

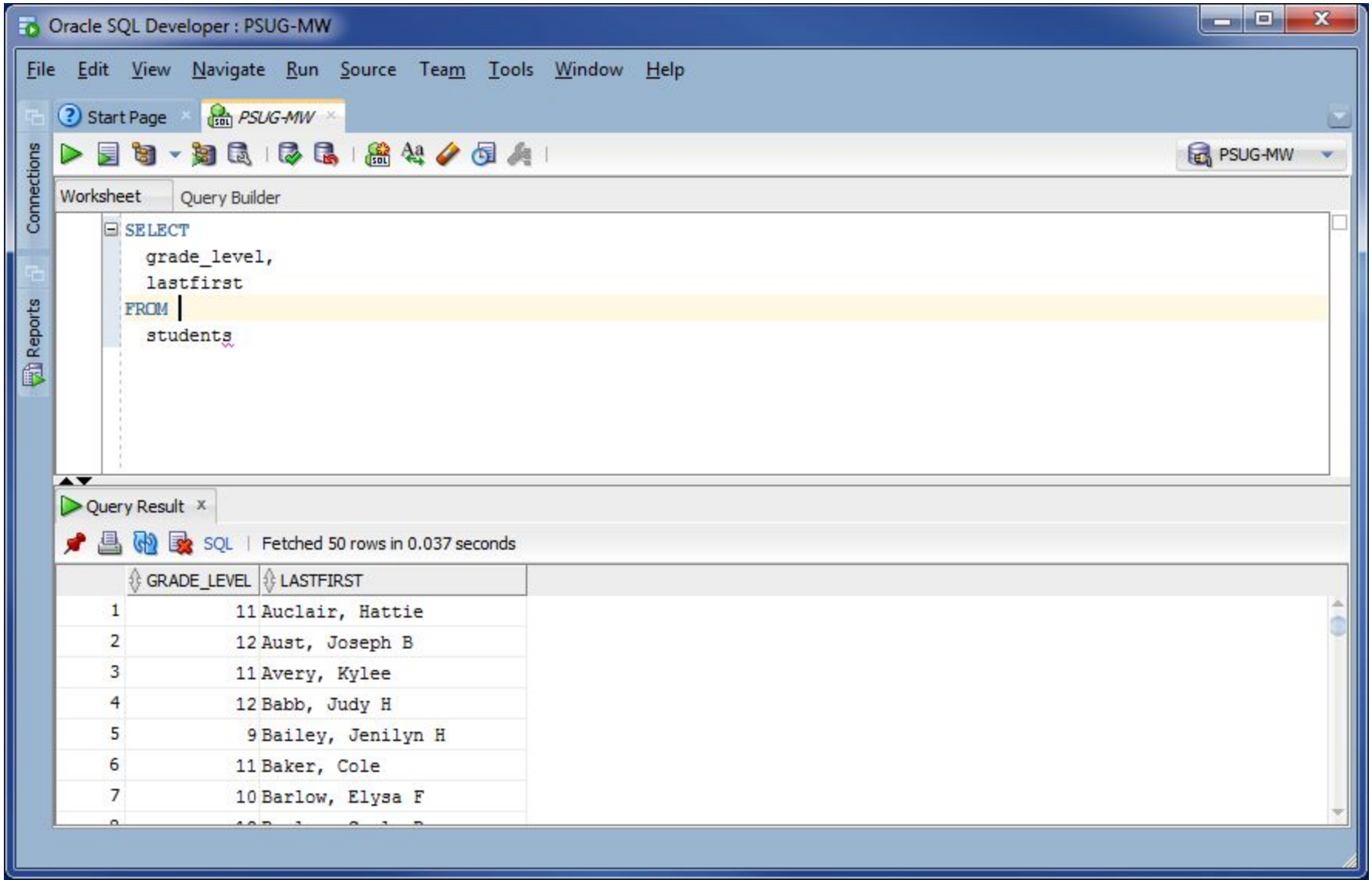
# SELECT statement

---

- All of our queries will begin with SELECT

- Required pieces
  - SELECT keyword
    - List of column names
  - FROM keyword
    - Table name

# SELECT statement (cont.)



# Formatting

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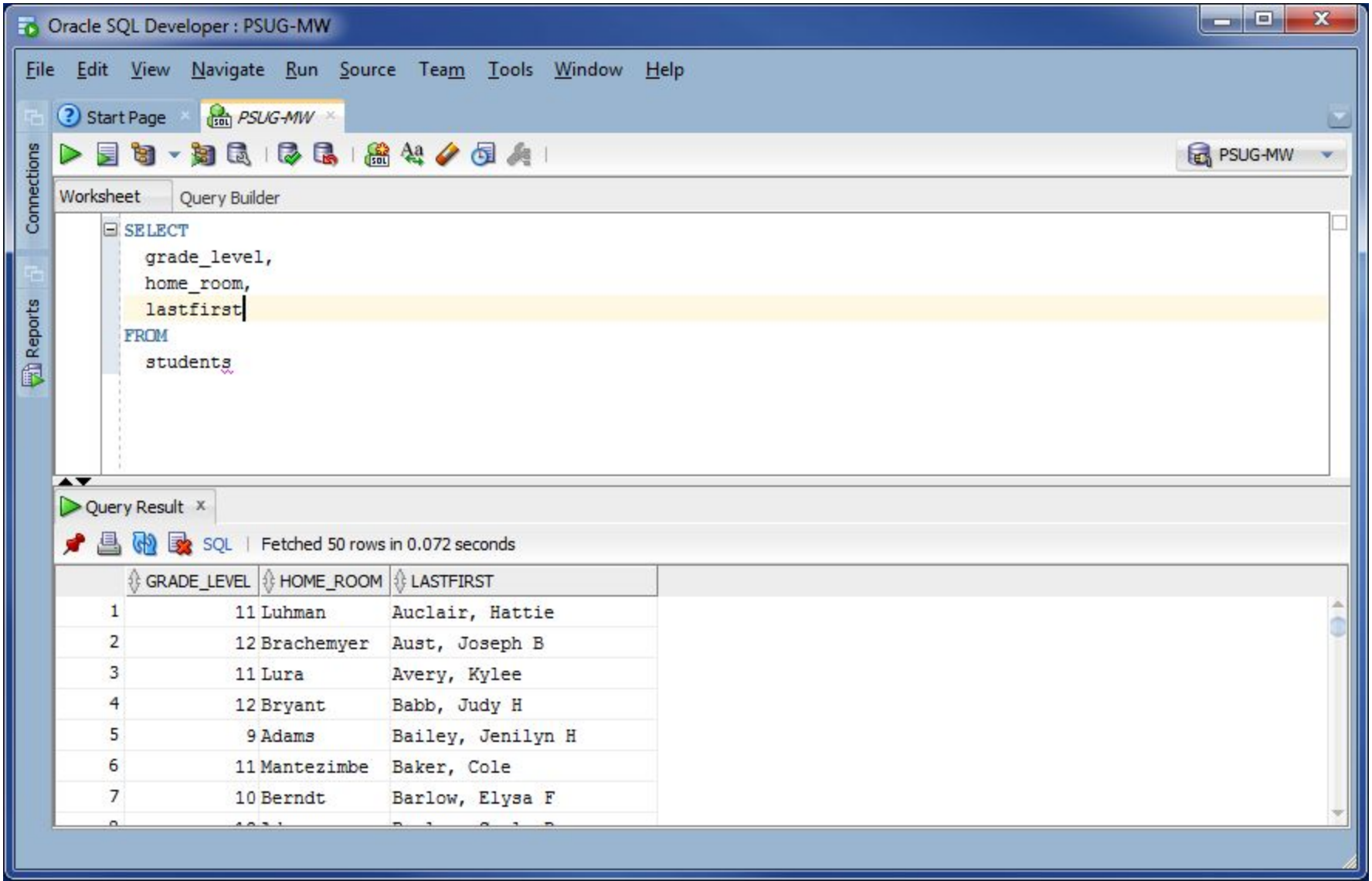
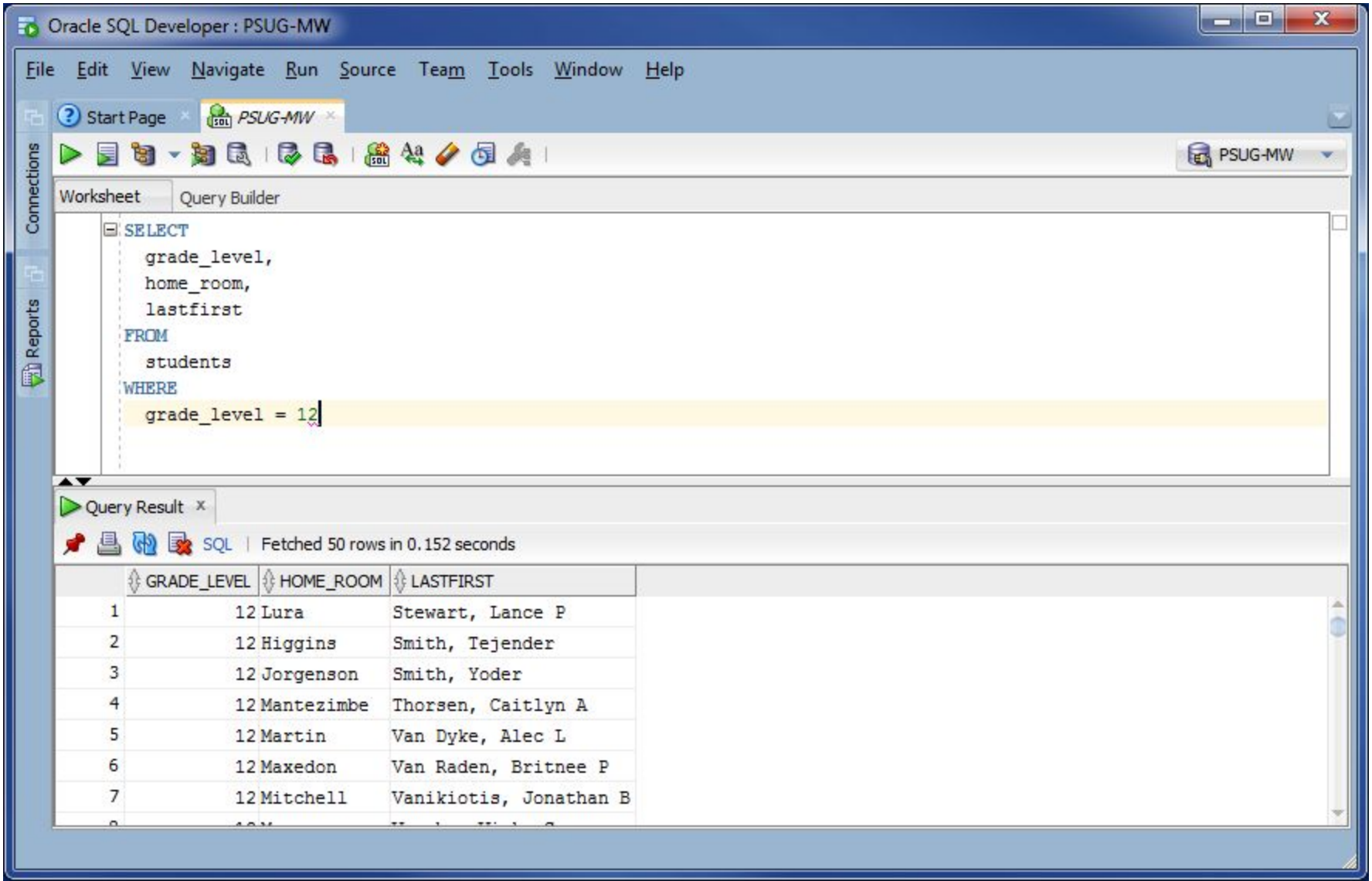
- CAPITALIZATION does not matter
  - Some prefer to type keywords as ALL CAPS
  - Be careful on comparisons: 'aghs' != 'AGHS'
- Spaces between keywords are required
- Tabbing and new lines are optional but recommended
  - SELECT field1, field2 FROM tables
    OR
  - SELECT
        field1,
        field2
    FROM
        tables

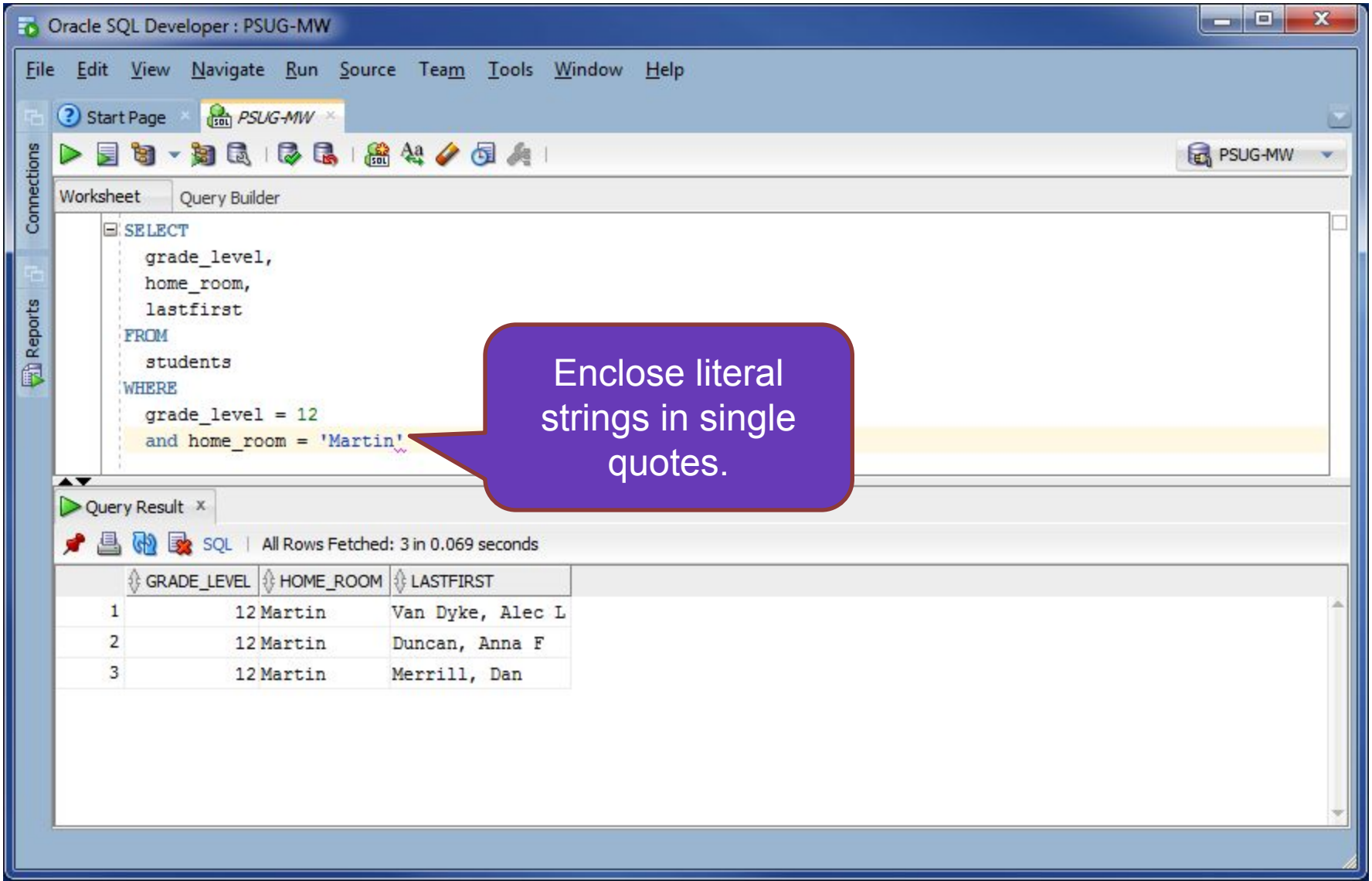
# SELECT statement (cont.)



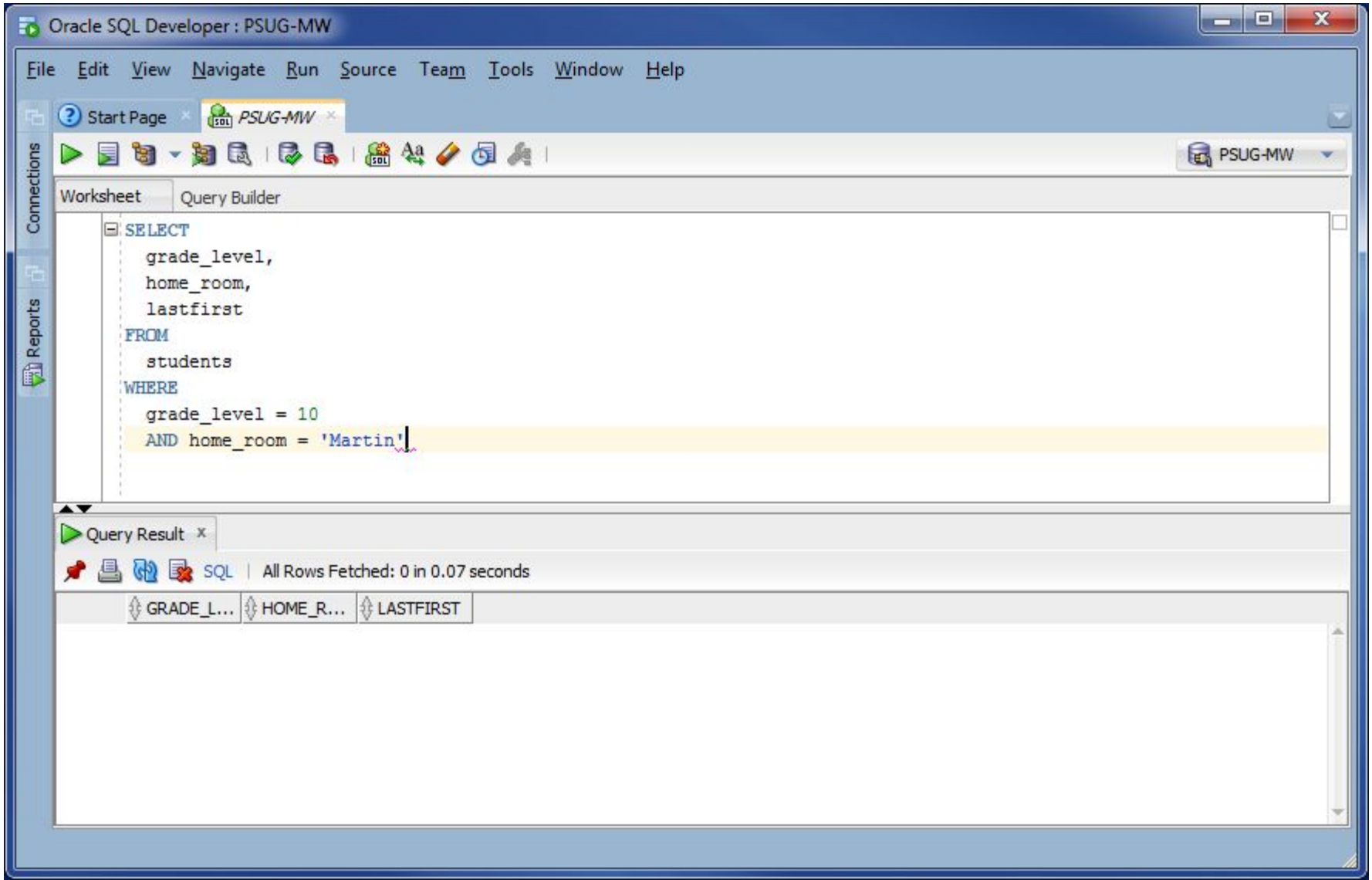
# WHERE clause and = operator



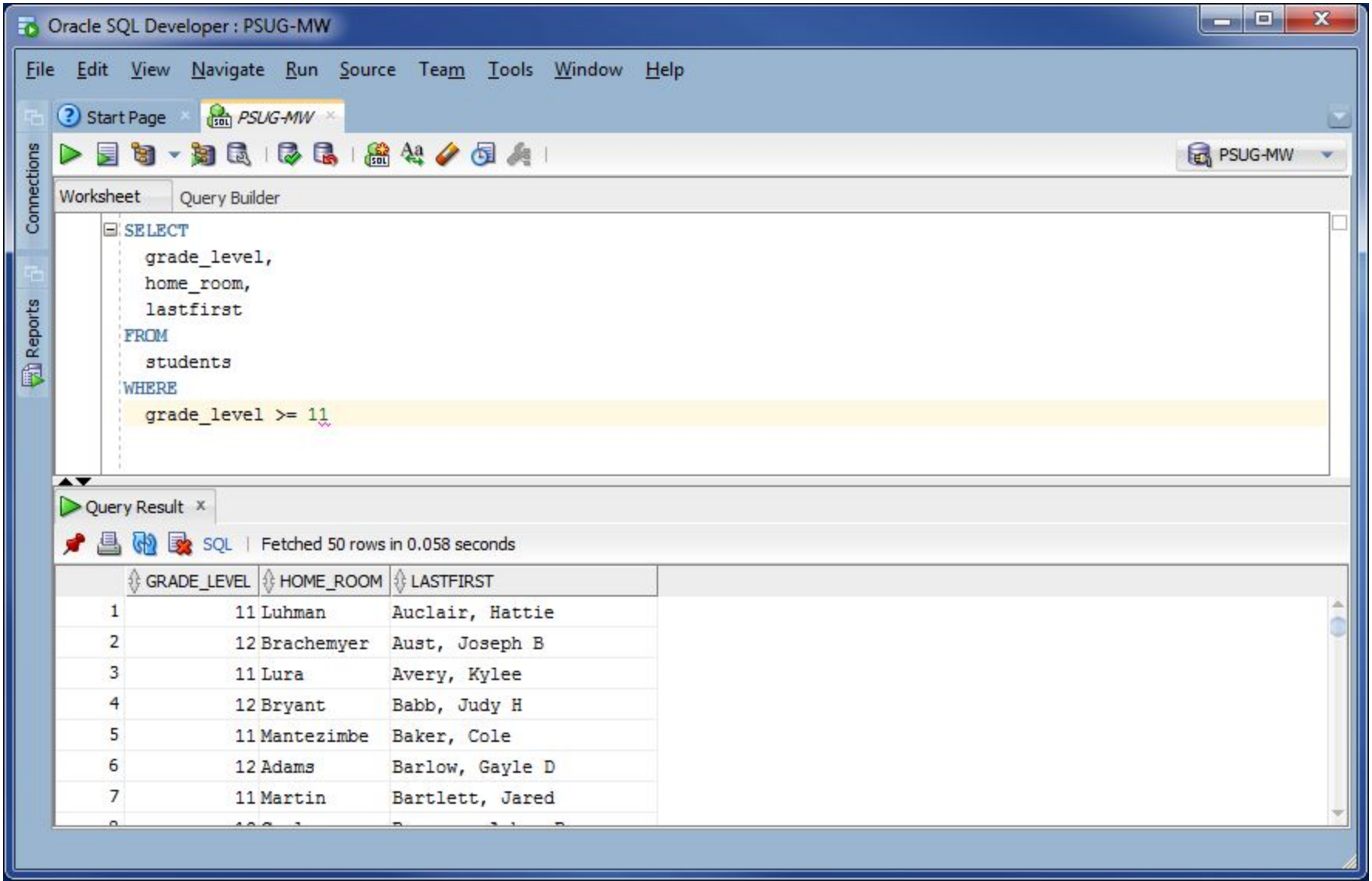
# AND operator



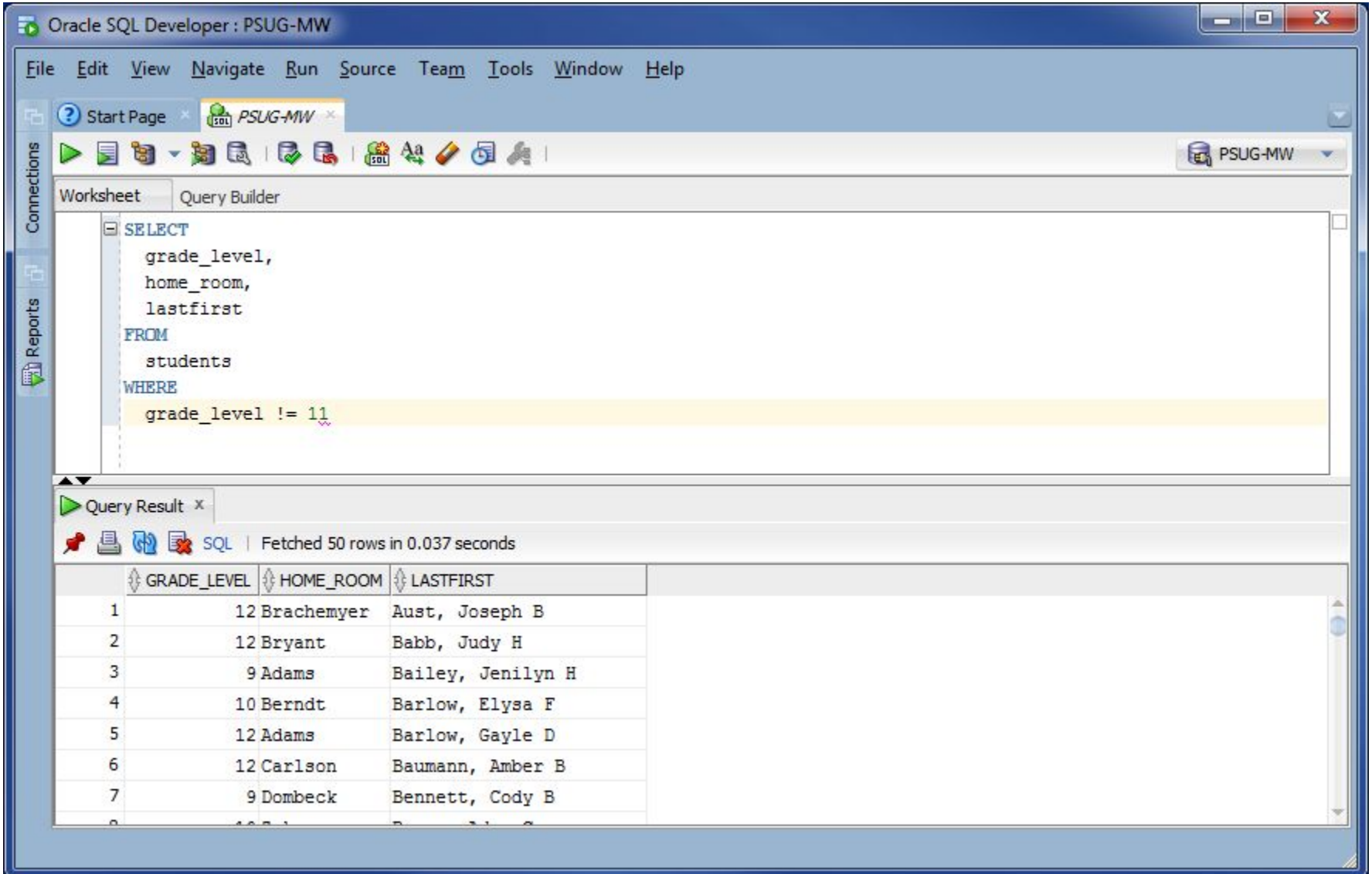
# AND operator



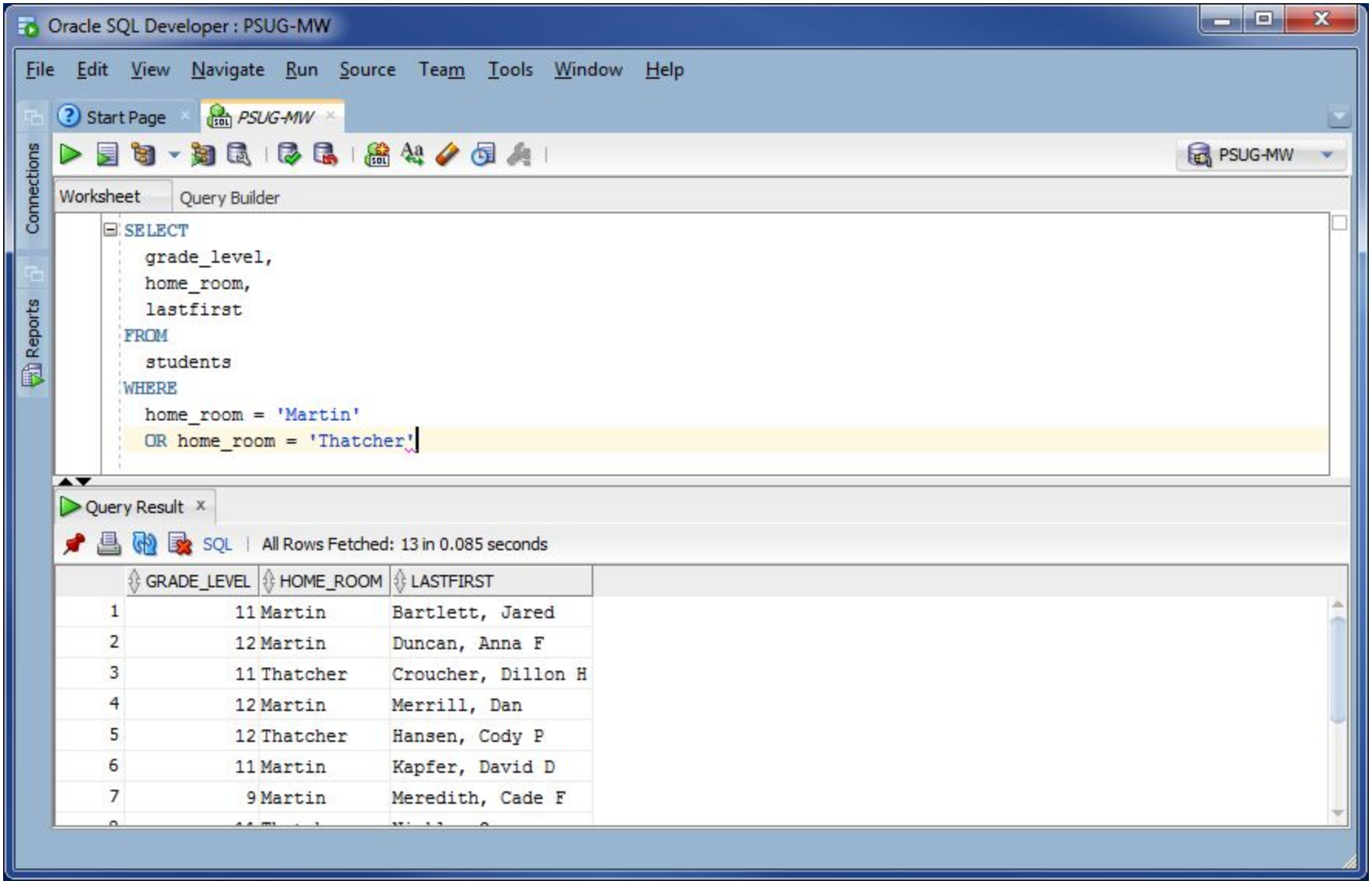
# >= operator


Oracle SQL Developer : PSUG-MW
File Edit View Navigate Run Source Team Tools Window Help
Start Page
PSUG-MW
Connections
Reports
PSUG-MW
Worksheet
Query Builder
SELECT
grade_level,
home_room,
lastfirst
FROM
students
WHERE
grade_level >= 11
Query Result
SQL | Fetched 50 rows in 0.058 seconds
GRADE_LEVEL HOME_ROOM LASTFIRST
1 11 Luhman Auclair, Hattie
2 12 Brachemyer Aust, Joseph B
3 11 Lura Avery, Kylee
4 12 Bryant Babb, Judy H
5 11 Mantezimbe Baker, Cole
6 12 Adams Barlow, Gayle D
7 11 Martin Bartlett, Jared

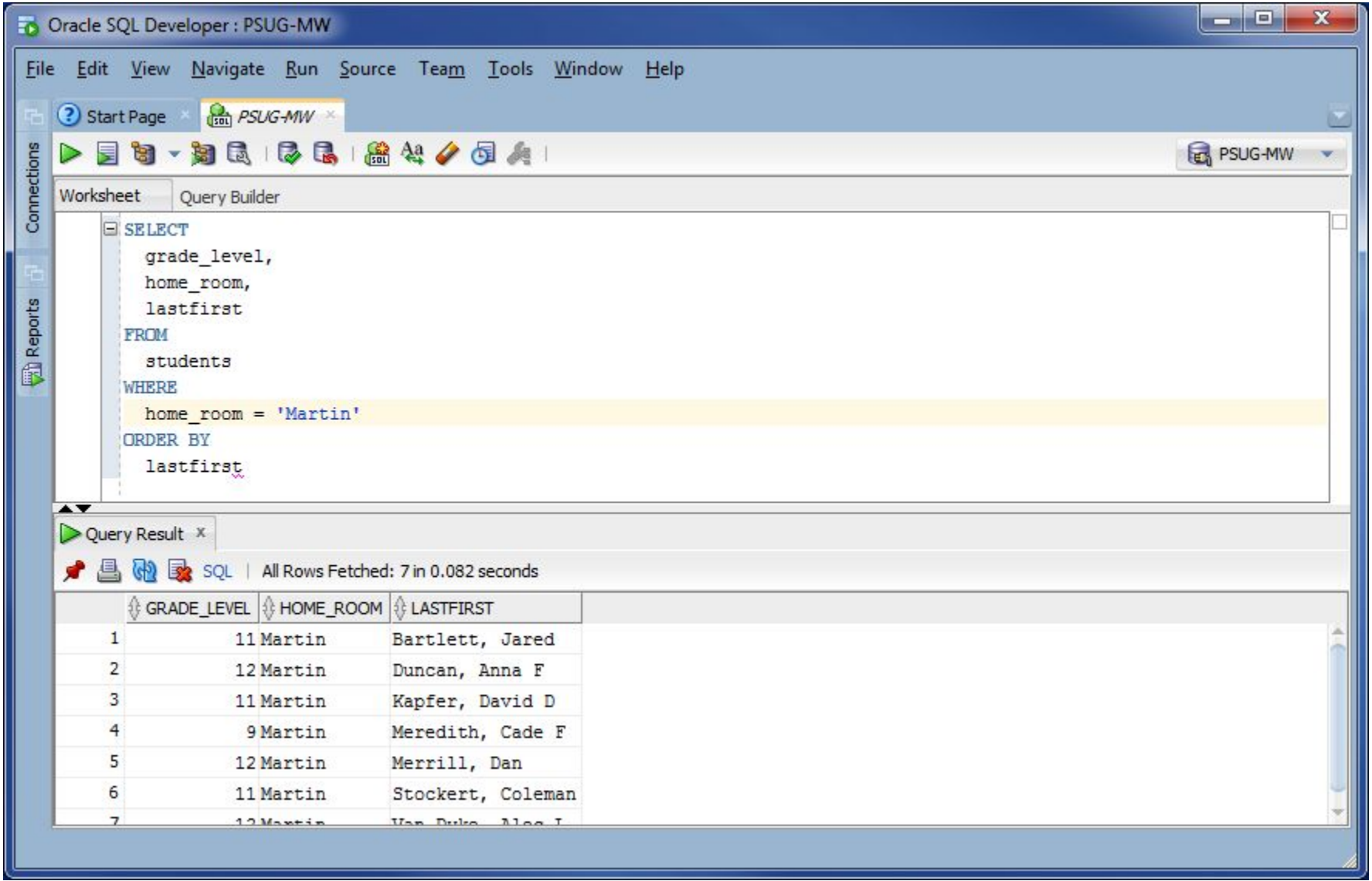
# != operator


Oracle SQL Developer : PSUG-MW
File Edit View Navigate Run Source Team Tools Window Help
Start Page
PSUG-MW
Connections
Reports
PSUG-MW
Worksheet
Query Builder
SELECT
grade_level,
home_room,
lastfirst
FROM
students
WHERE
grade_level != 11
Query Result
SQL
Fetched 50 rows in 0.037 seconds
GRADE_LEVEL HOME_ROOM LASTFIRST
1 12 Brachemyer Aust, Joseph B
2 12 Bryant Babb, Judy H
3 9 Adams Bailey, Jenilyn H
4 10 Berndt Barlow, Elysa F
5 12 Adams Barlow, Gayle D
6 12 Carlson Baumann, Amber B
7 9 Dombeck Bennett, Cody B

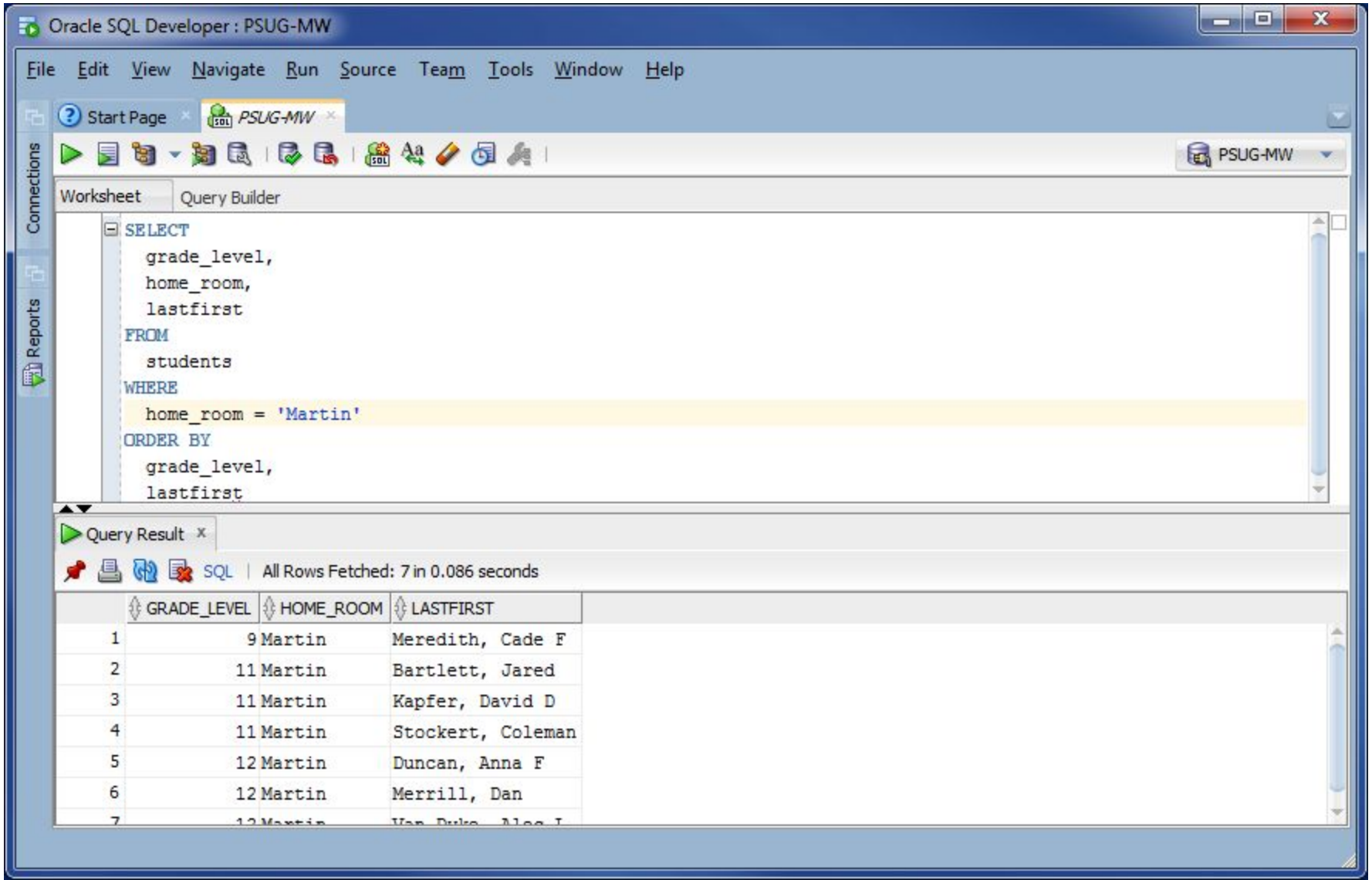
# OR operator


Oracle SQL Developer : PSUG-MW
File Edit View Navigate Run Source Team Tools Window Help
Start Page
PSUG-MW
Connections
Reports
PSUG-MW
Worksheet
Query Builder
SELECT
grade_level,
home_room,
lastfirst
FROM
students
WHERE
home_room = 'Martin'
OR home_room = 'Thatcher'
Query Result
SQL | All Rows Fetched: 13 in 0.085 seconds
GRADE_LEVEL HOME_ROOM LASTFIRST
1 11 Martin Bartlett, Jared
2 12 Martin Duncan, Anna F
3 11 Thatcher Croucher, Dillon H
4 12 Martin Merrill, Dan
5 12 Thatcher Hansen, Cody P
6 11 Martin Kapfer, David D
7 9 Martin Meredith, Cade F

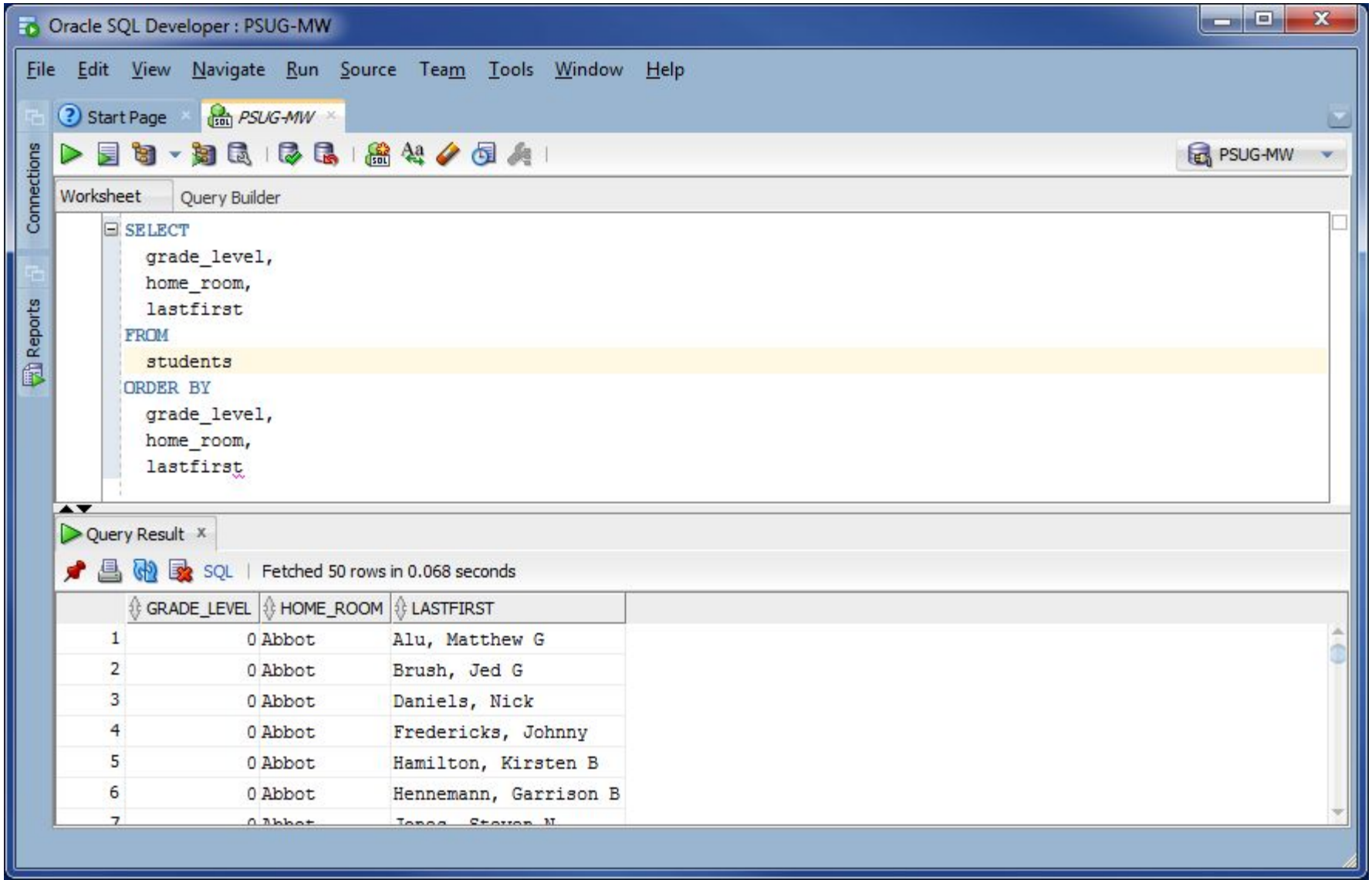
# ORDER BY clause



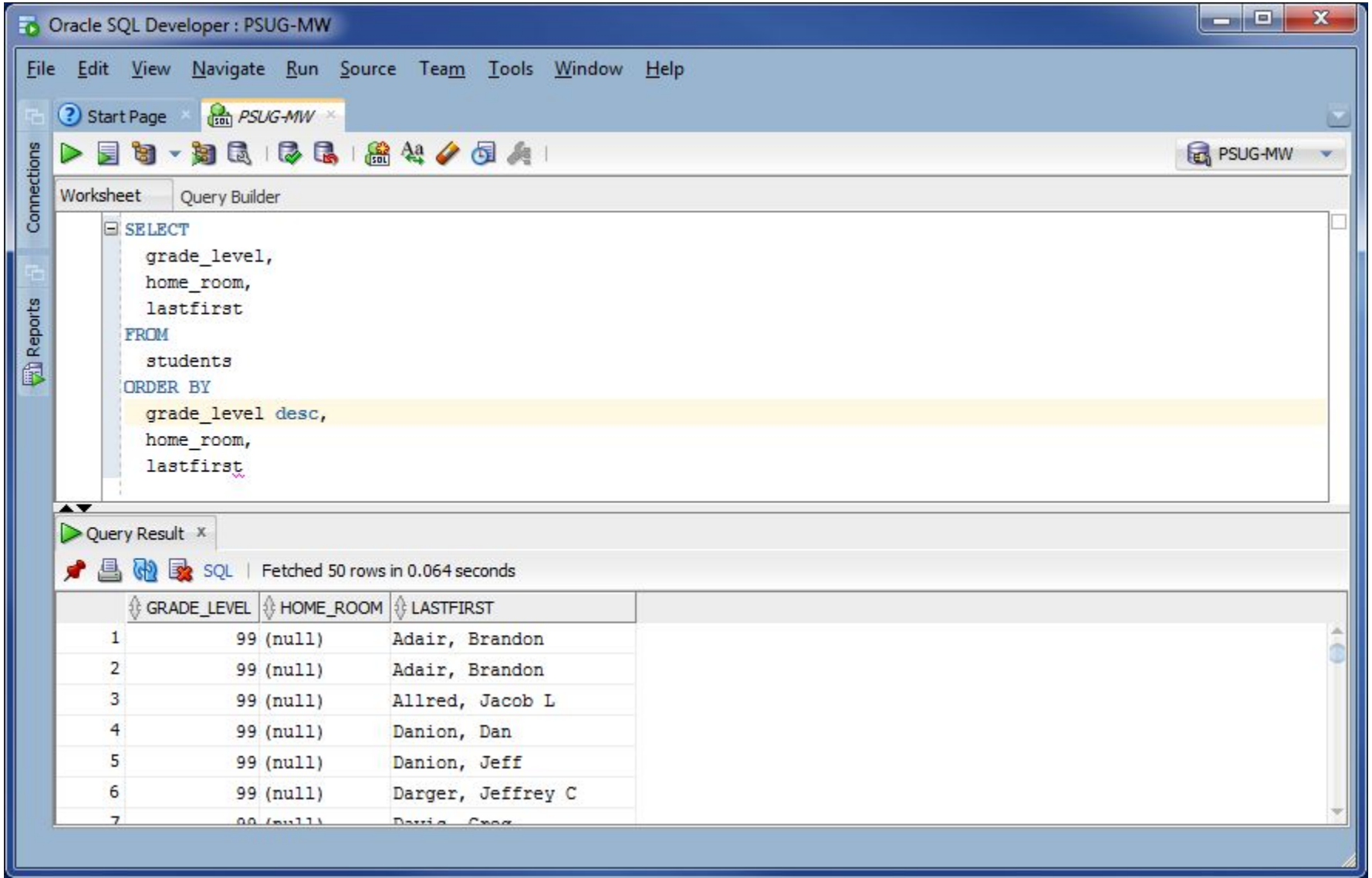
# ORDER BY clause



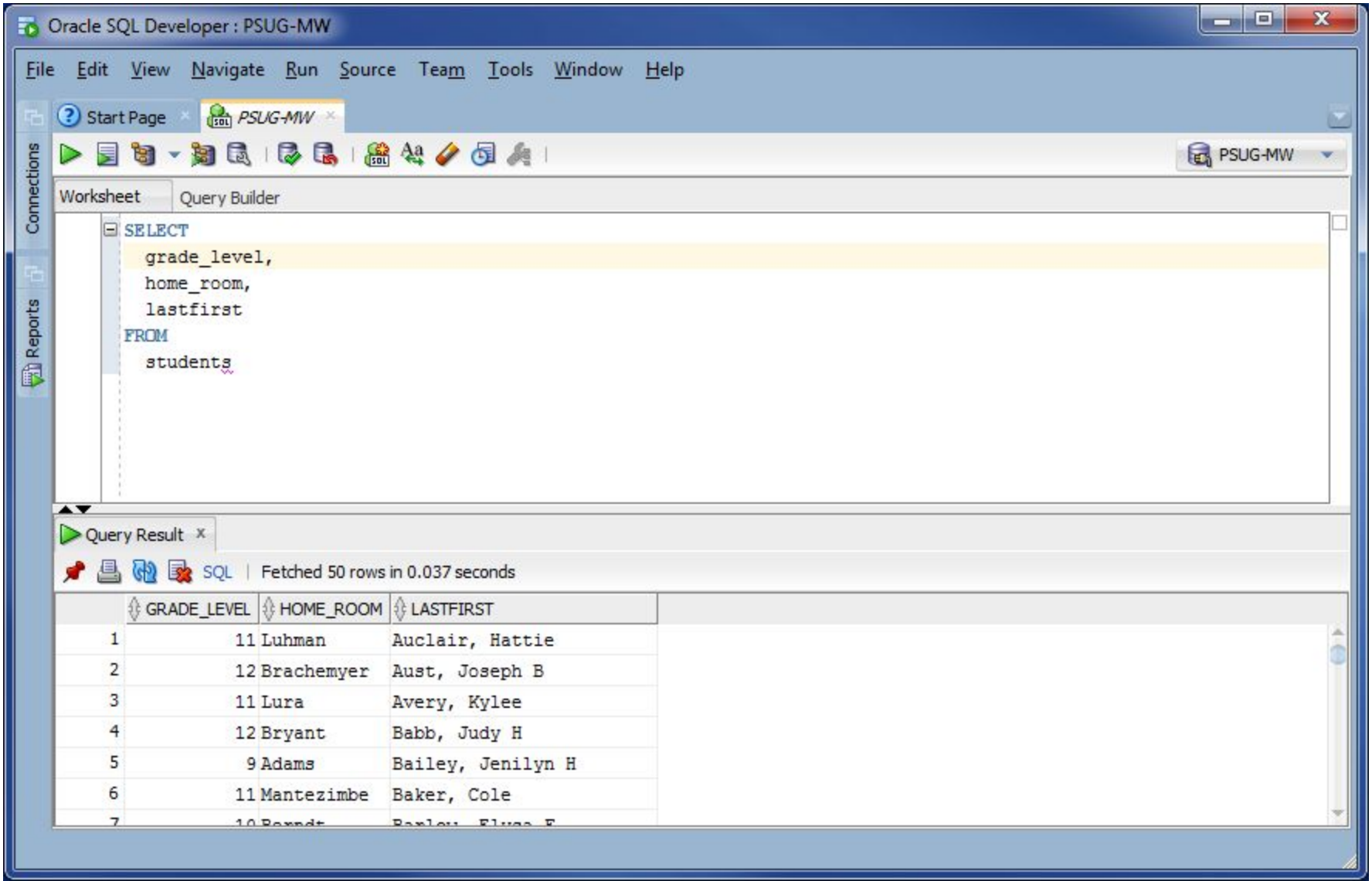
# ORDER BY clause



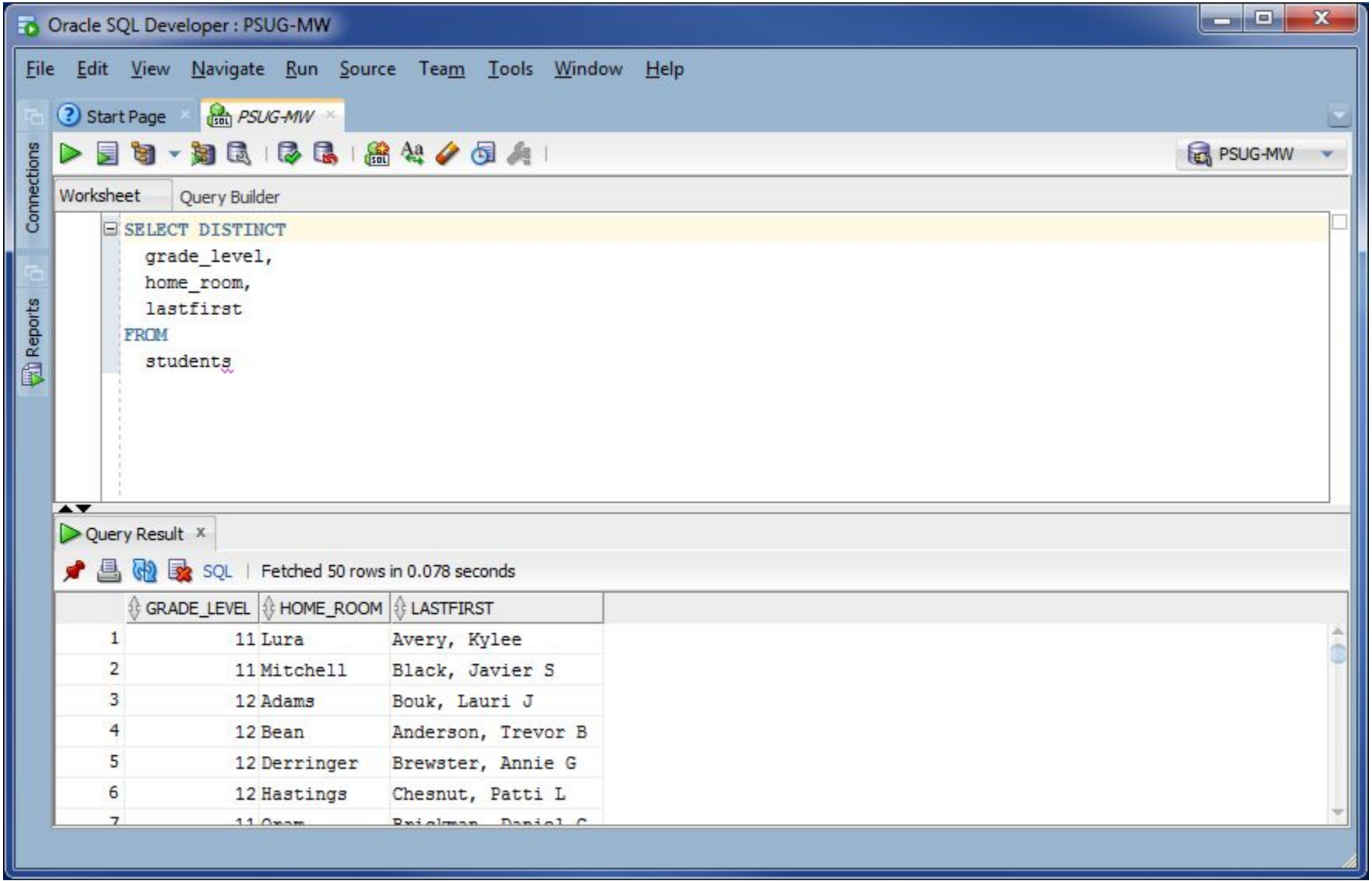
# ORDER BY clause, DESC keyword



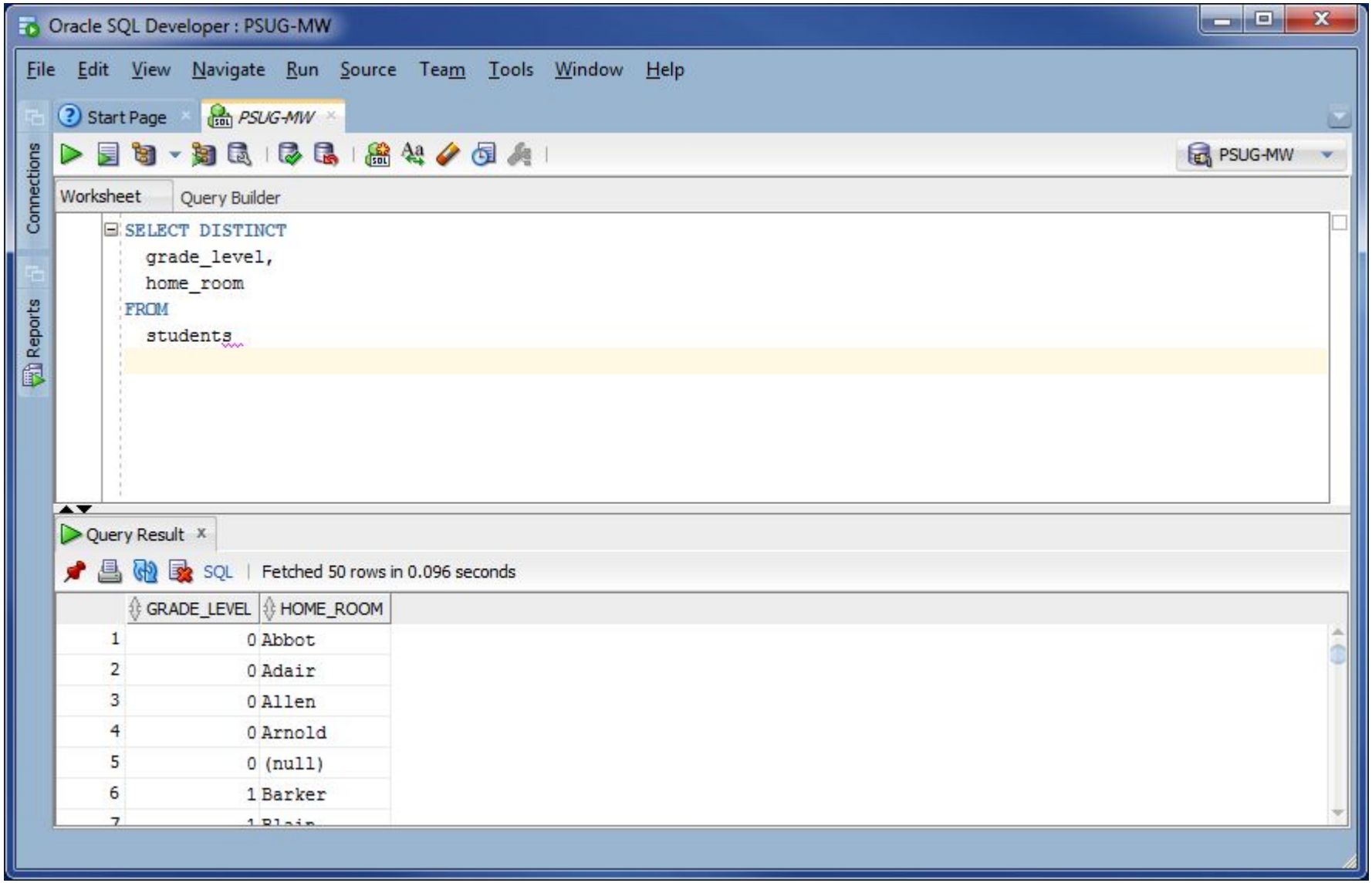
# SELECT statement (cont.)



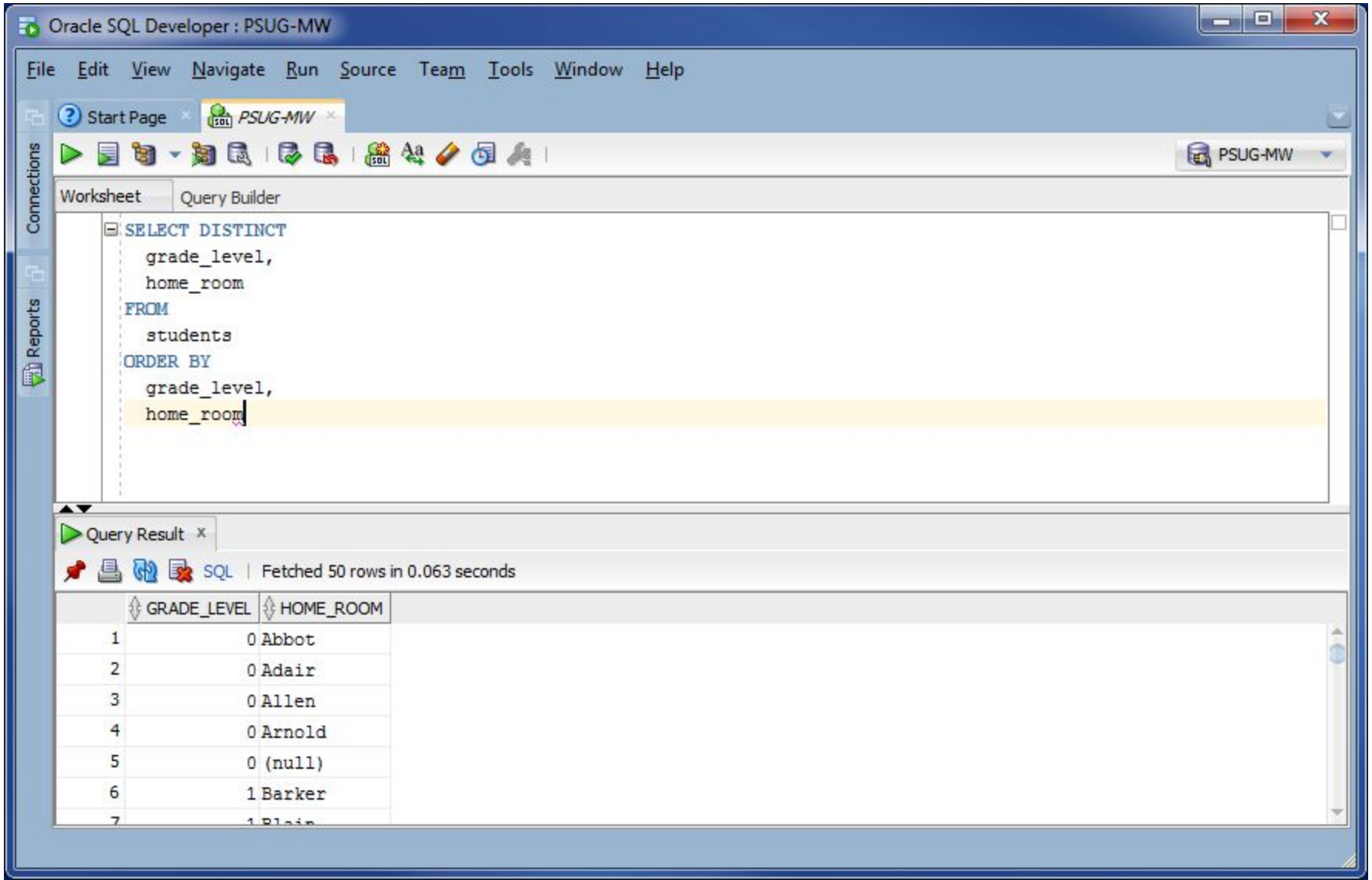
# DISTINCT keyword



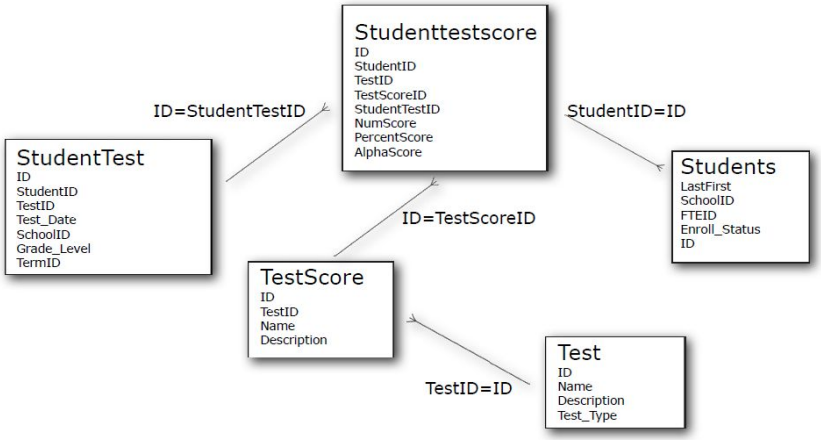
# DISTINCT keyword



# DISTINCT keyword



# Tables

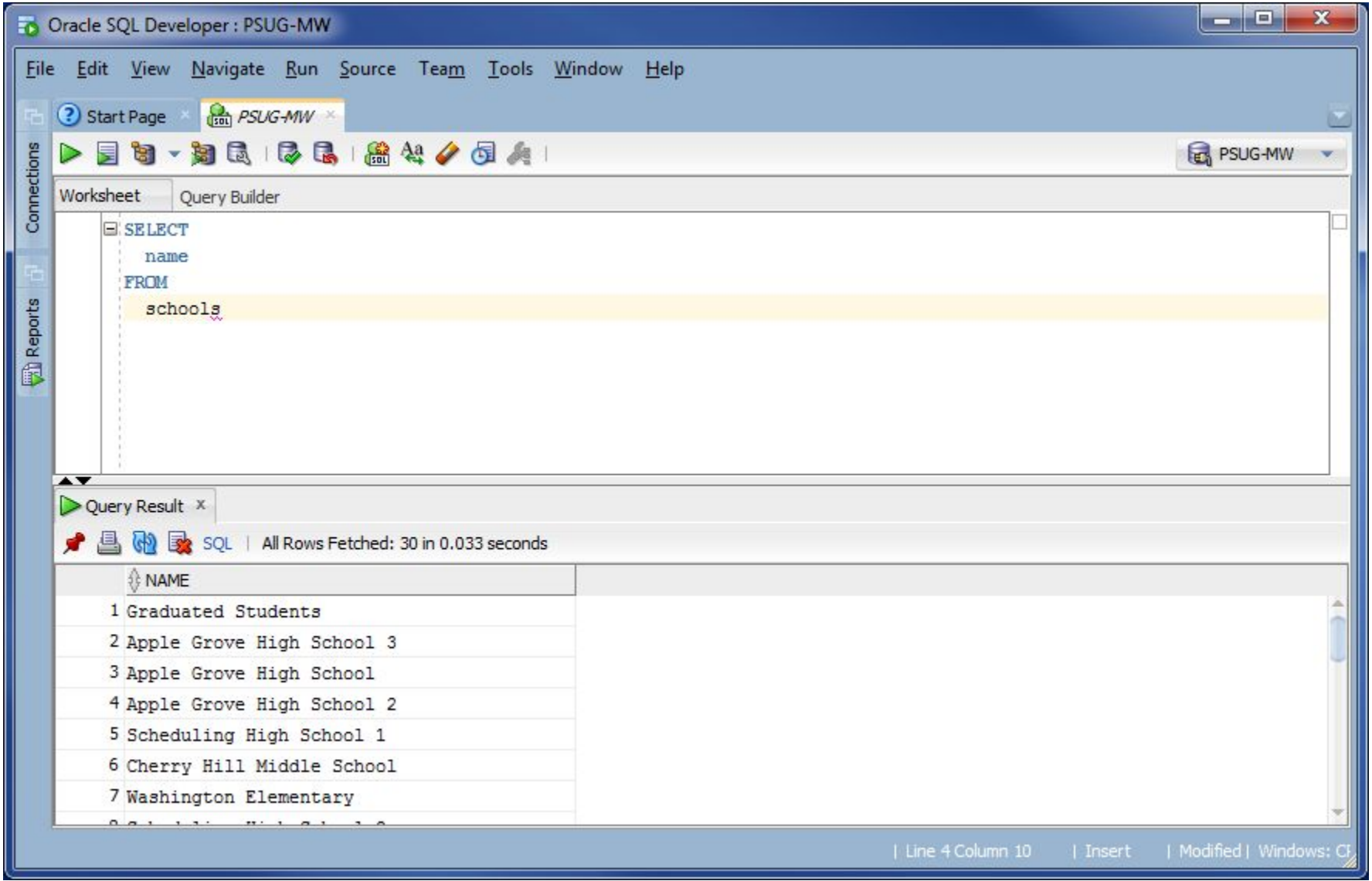

Studenttestscore
ID
StudentID
TestID
TestScoreID
StudentTestID
NumScore
PercentScore
AlphaScore
ID=StudentTestID
StudentID=ID
StudentTest
ID
StudentID
TestID
Test_Date
SchoolID
Grade_Level
TermID
Students
LastFirst
SchoolID
FTEID
Enroll_Status
ID
ID=TestScoreID
TestScore
ID
TestID
Name
Description
Test
ID
Name
Description
Test_Type
TestID=ID

# Tables

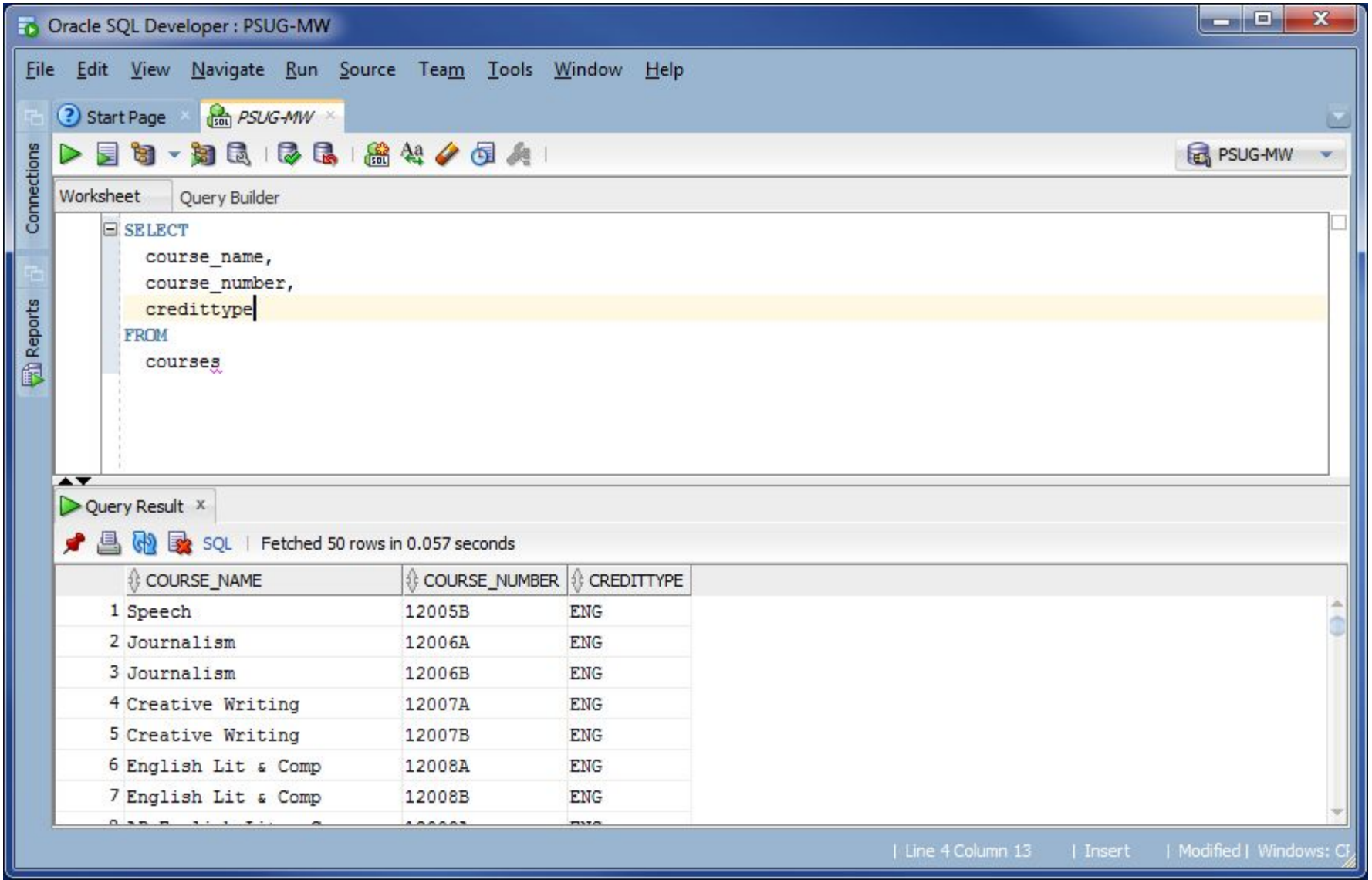
---

- Everything is stored in tables
  - Students
  - Schools
  - Courses
  - Sections
  - Terms
- Same tables and columns as DDE

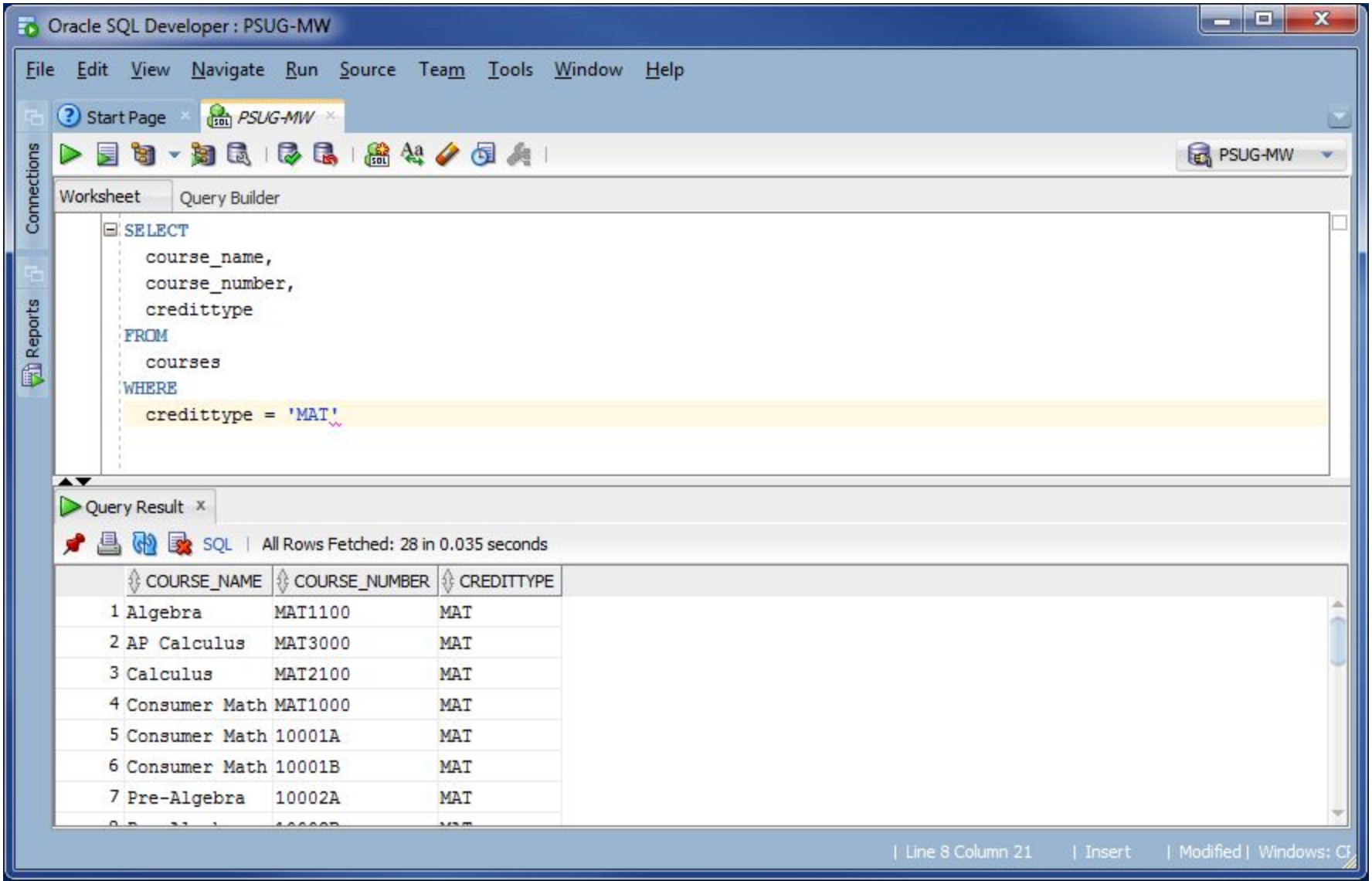
# Schools Table



# Courses Table



# Courses Table



# Tables and Columns to Know

---

- **Students**
  - grade_level
  - enroll_status
    - Enumerated (KB 5967)
      - -1 = Pre-registered
      - 0 = Active
      - 2 = Transferred
      - 3 = Graduated
  - entrydate
  - exitdate
  - home_room
  - schoolid (linked to the schools table)

# Tables and Columns to Know

---

- **Schools**
  - school_number
  - name
- **Terms**
  - schoolid
  - firstday
  - lastday
  - yearid

# Tables and Columns to Know

---

- **Courses**
  - course_number
  - course_name
- **CC** (Current Courses)
  - studentid
  - course_number
  - sectionid
  - termid
  - dateenrolled
  - dateleft
  - expression

# Tables and Columns to Know

---

- **StoredGrades**
  - studentid
  - course_number
  - grade
  - gradescale_name
  - sectionid
  - storecode
  - termid
  - gpa_points
  - gpa_addedvalue
  - potentialcrhrs
  - earnedcrhrs

# Tables and Columns to Know

---

- **Sections**
  - course_number
  - expression
  - schoolid
  - section_number
  - teacher
  - termid

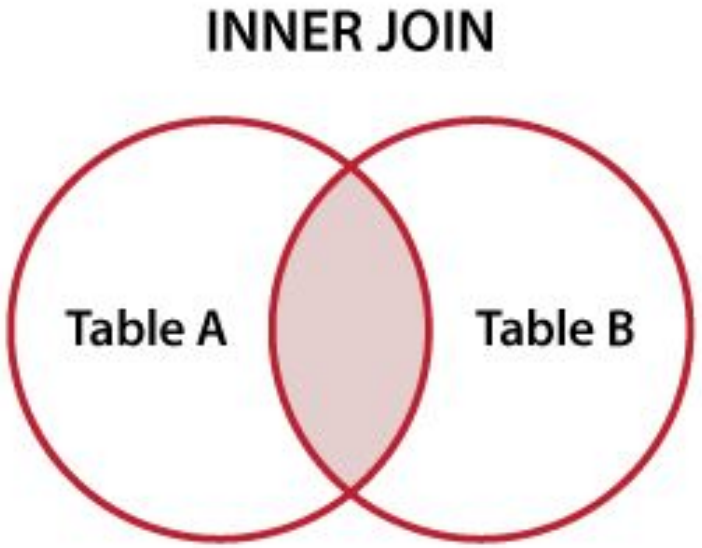
# Tables and Columns

---

- Data Dictionary


- Any other data you want to extract?

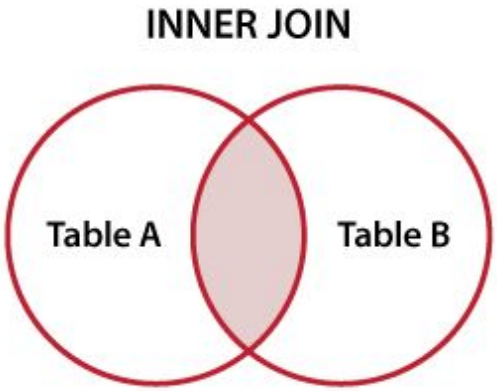
# JOINS



# JOINS

---

- INNER JOINs are the default type and are the most intuitive
  - Matches rows from one table with rows in another table
  - Returns fields from one or both tables in the result set
  - Can be strung together to combine multiple tables into one result table



# JOIN Concept

| lastfirst | schoolid |
|---|---|
| Ackerman, Stan | 600 |
| Adair, Brandon | 100 |
| Adams, Brandon G | 700 |
| Adams, Corby | 300 |
| Adams, Corby | 200 |
| … | … |

**Students**


| lastfirst | name |
|---|---|
| Ackerman, Stan | Cherry Hill Middle School |
| Adair, Brandon | Apple Grove High School |
| Adams, Brandon G | Washington Elementary |
| Adams, Corby | Apple Grove High School 3 |
| Adams, Corby | Apple Grove High School 2 |
| … | … |

| school_number | name |
|---|---|
| 100 | Apple Grove High School |
| 200 | Apple Grove High School 2 |
| 300 | Apple Grove High School 3 |
| 600 | Cherry Hill Middle School |
| 700 | Washington Elementary |
| … | … |

**Schools**

# JOINS

---

- INNER is default type of JOIN
  - Only returns records matched in BOTH tables

- Can create ambiguous column names
  - id appears in almost every table
  - Recommended to use table.column notation to reference columns when using any JOIN

# INNER JOINS

---

- Basic syntax:
  - ```
    SELECT
        fields
    FROM
        table1
        JOIN table2
            ON table1.table2id = table2.id
    ```
  - Without the ON condition, every row from table1 will be multiplied by every row from table 2.
    - This is probably not what you want.
    ```

# INNER JOINS

---

- For example, imagine that you want a list of student names and the school they attend
- Student name is found in the students table
- School name is in the schools table
- How do we match?
  - students.schoolid is linked to schools.school_number
  - We will join students to schools using this unique identifier and return only the columns we want

# JOIN Concept

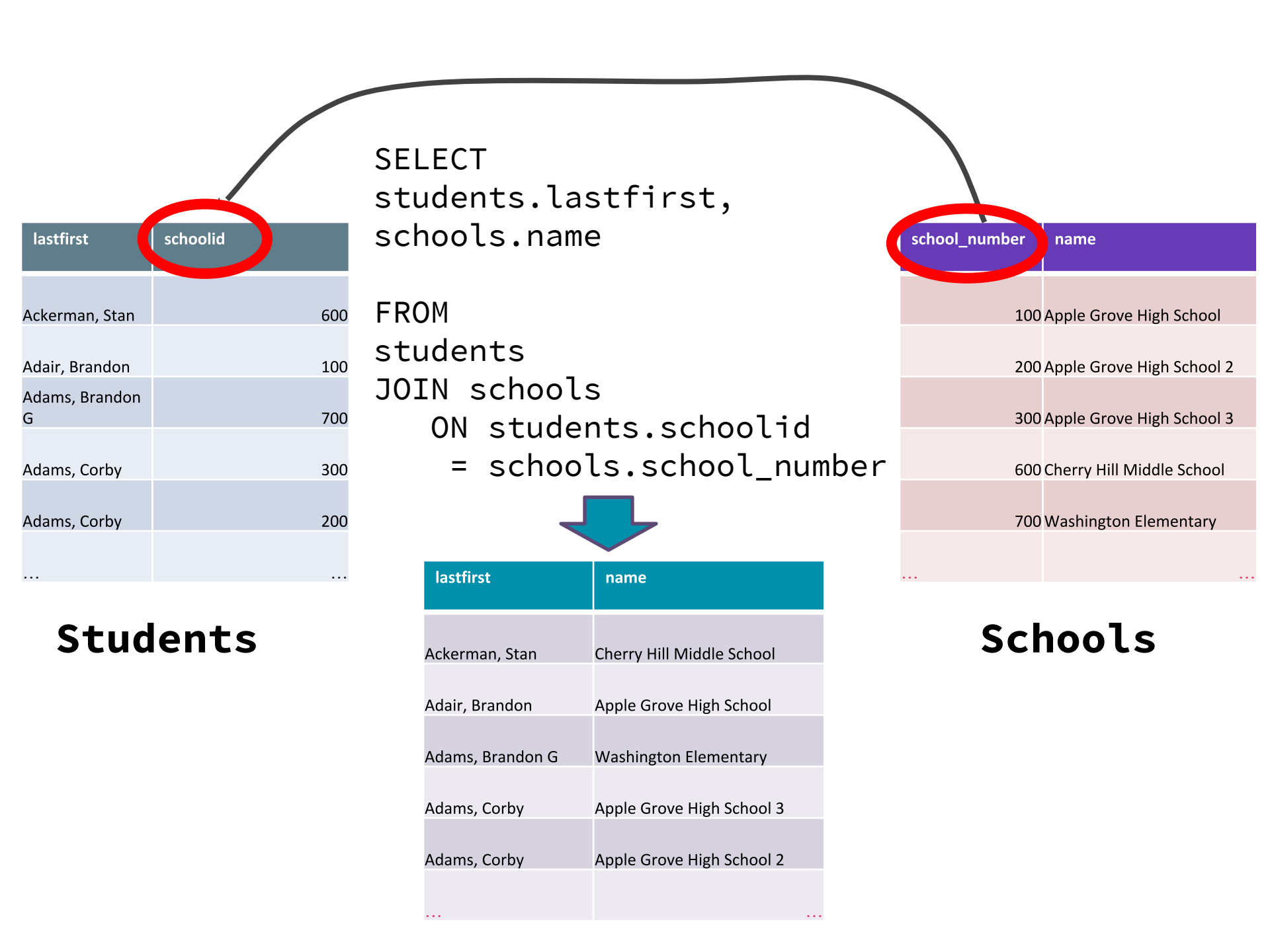
| lastfirst | schoolid |
|---|---|
| Ackerman, Stan | 600 |
| Adair, Brandon | 100 |
| Adams, Brandon G | 700 |
| Adams, Corby | 300 |
| Adams, Corby | 200 |
| … | … |

**Students**

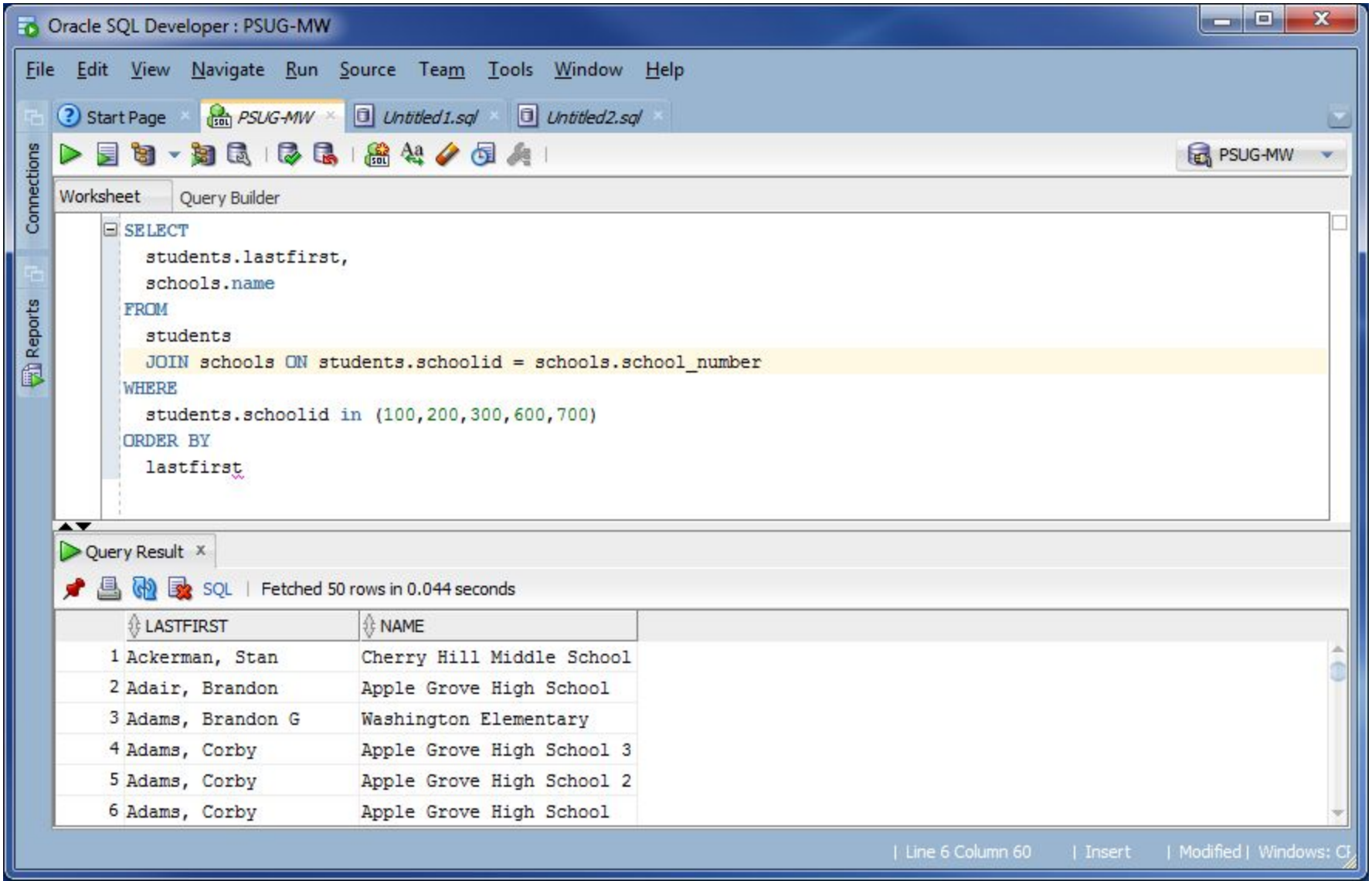

| lastfirst | name |
|---|---|
| Ackerman, Stan | Cherry Hill Middle School |
| Adair, Brandon | Apple Grove High School |
| Adams, Brandon G | Washington Elementary |
| Adams, Corby | Apple Grove High School 3 |
| Adams, Corby | Apple Grove High School 2 |
| … | … |

| school_number | name |
|---|---|
| 100 | Apple Grove High School |
| 200 | Apple Grove High School 2 |
| 300 | Apple Grove High School 3 |
| 600 | Cherry Hill Middle School |
| 700 | Washington Elementary |
| … | … |

**Schools**


SELECT
students.lastfirst,
schools.name
FROM
students
JOIN schools
ON students.schoolid
= schools.school_number
lastfirst
schoolid
Ackerman, Stan 600
Adair, Brandon 100
Adams, Brandon G 700
Adams, Corby 300
Adams, Corby 200
…
Students
school_number
name
100 Apple Grove High School
200 Apple Grove High School 2
300 Apple Grove High School 3
600 Cherry Hill Middle School
700 Washington Elementary
Schools
lastfirst
name
Ackerman, Stan Cherry Hill Middle School
Adair, Brandon Apple Grove High School
Adams, Brandon G Washington Elementary
Adams, Corby Apple Grove High School 3
Adams, Corby Apple Grove High School 2

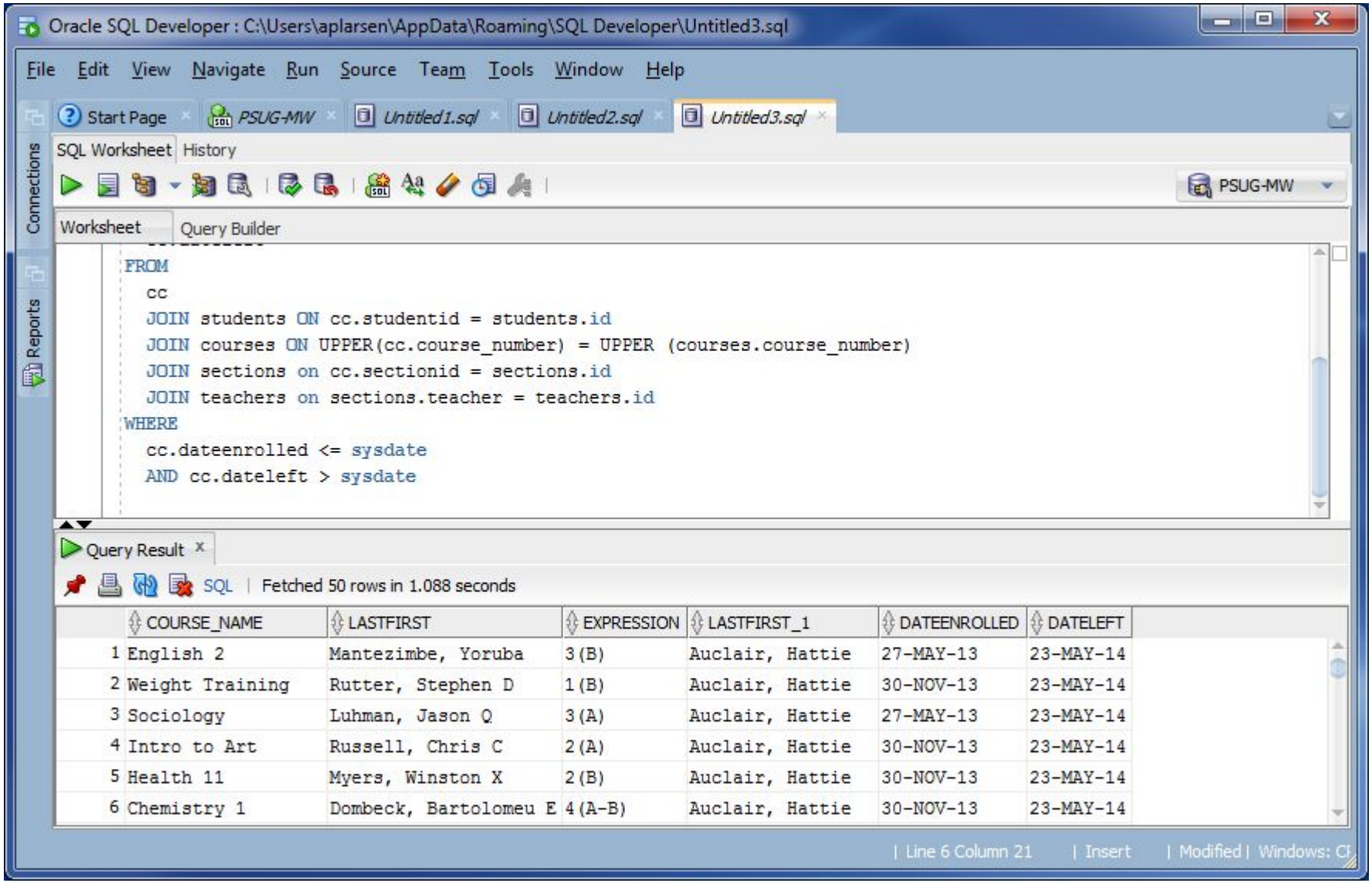
# INNER JOIN


Oracle SQL Developer : PSUG-MW
File Edit View Navigate Run Source Team Tools Window Help
Start Page
PSUG-MW
Untitled1.sql
Untitled2.sql
PSUG-MW
Worksheet
Query Builder
Connections
Reports
SELECT
students.lastfirst,
schools.name
FROM
students
JOIN schools ON students.schoolid = schools.school_number
WHERE
students.schoolid in (100,200,300,600,700)
ORDER BY
lastfirst
Query Result
SQL | Fetched 50 rows in 0.044 seconds
LASTFIRST
NAME
1 Ackerman, Stan
Cherry Hill Middle School
2 Adair, Brandon
Apple Grove High School
3 Adams, Brandon G
Washington Elementary
4 Adams, Corby
Apple Grove High School 3
5 Adams, Corby
Apple Grove High School 2
6 Adams, Corby
Apple Grove High School
Line 6 Column 60
Insert
Modified
Windows: Cr

# Current schedule example

```
SELECT
   courses.course_name,
   teachers.lastfirst,
   cc.expression,
   students.lastfirst,
   cc.dateenrolled,
   cc.dateleft
FROM
   cc
   JOIN students ON cc.studentid = students.id
   JOIN courses ON UPPER(cc.course_number) =
                   UPPER (courses.course_number)
   JOIN sections on cc.sectionid = sections.id
   JOIN teachers on sections.teacher = teachers.id
WHERE
   cc.dateenrolled <= sysdate
   AND cc.dateleft > sysdate
```

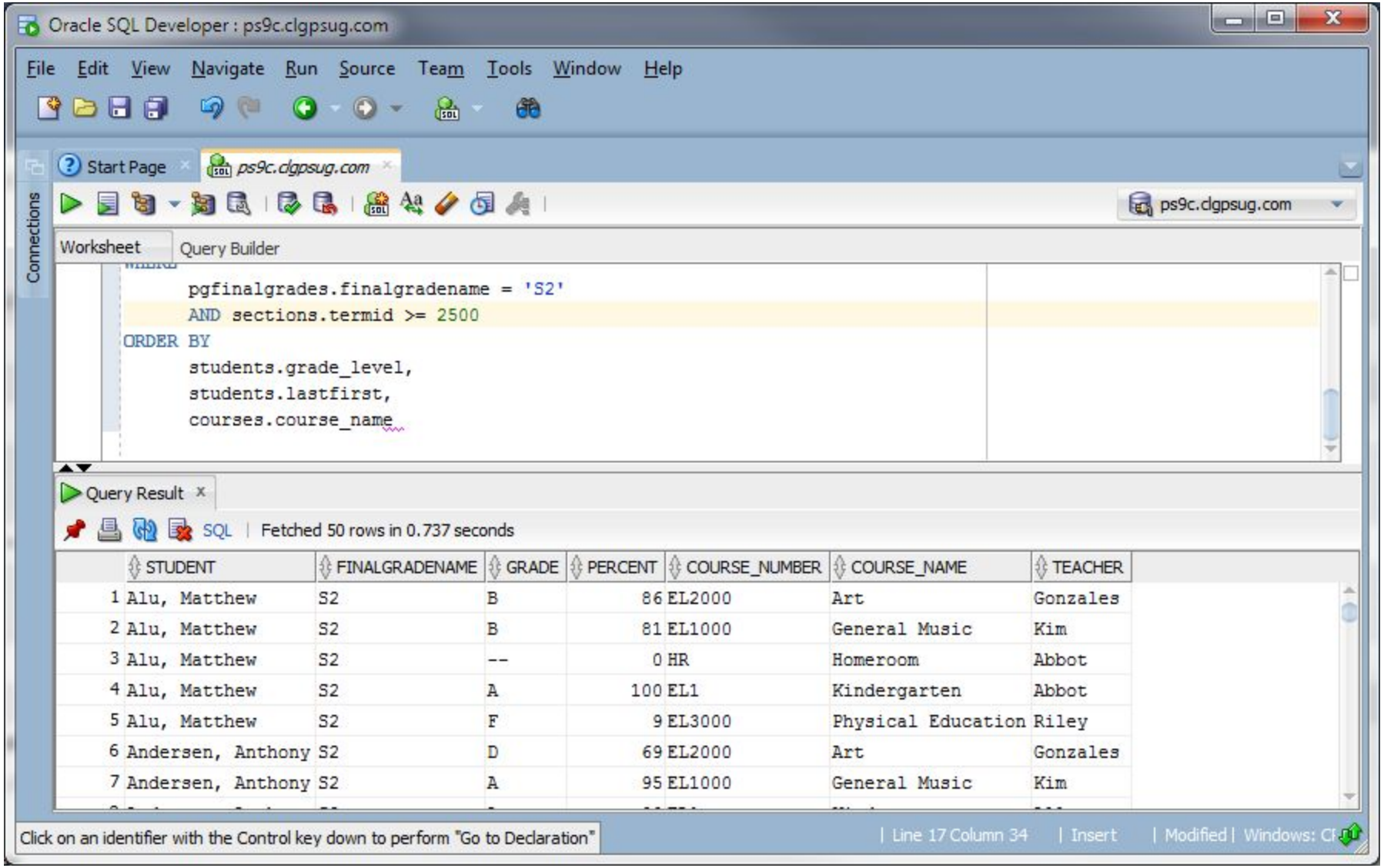
# Current schedule example



# Current grades example

```
SELECT
        students.last_name || ', ' || students.first_name student,
        pgfinalgrades.finalgradename,
        grade,
        percent,
        courses.course_number,
        courses.course_name,
        teachers.last_name teacher
FROM
        pgfinalgrades
        JOIN sections on pgfinalgrades.sectionid = sections.id
        JOIN teachers on sections.teacher = teachers.id
        JOIN students on pgfinalgrades.studentid = students.id
        JOIN courses on sections.course_number = courses.course_number
WHERE
        pgfinalgrades.finalgradename = 'S2'
        AND sections.termid >= 2800
ORDER BY
        students.grade_level,
        students.lastfirst,
        courses.course_name
```

# Current grades example



# Table aliasing

---

- Some people like to alias their tables:

```
SELECT
    st.grade_level grade,
    sch.name school,
    st.lastfirst student
FROM
    students st
    JOIN schools sch ON st.schoolid = sch.school_number
```

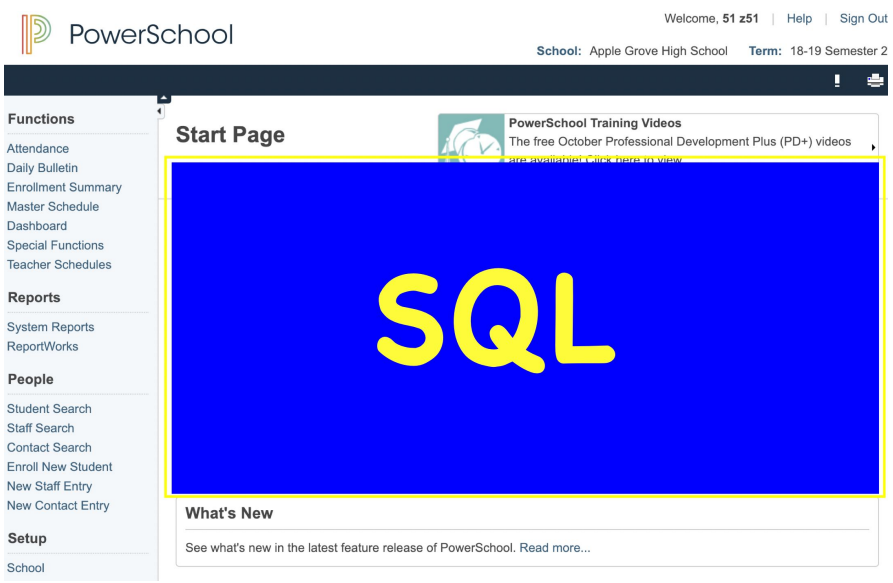
- This can make your SQL more difficult to read and troubleshoot.
- It also makes it  harder to reuse code in the future.
- Full table names are more typing, but you never have to decode your work later

# Resources

---

- PowerSource Data Dictionaries
  - https://support.powerschool.com/dir/5933
- PowerSource Oracle Account Passwords
  - https://support.powerschool.com/article/55006
- *Learning SQL* from O'Reilly:
  - http://shop.oreilly.com/product/9780596520847.do
- *SQL Pocket Guide* from O'Reilly:
  - http://shop.oreilly.com/product/0636920013471.do
- Tech on the Net
  - http://www.techonthenet.com/sql/index.php
- W3 Schools
  - http://www.w3schools.com/sql

# How Can I Use SQL inside PowerSchool?



# How can I use SQL inside PS?

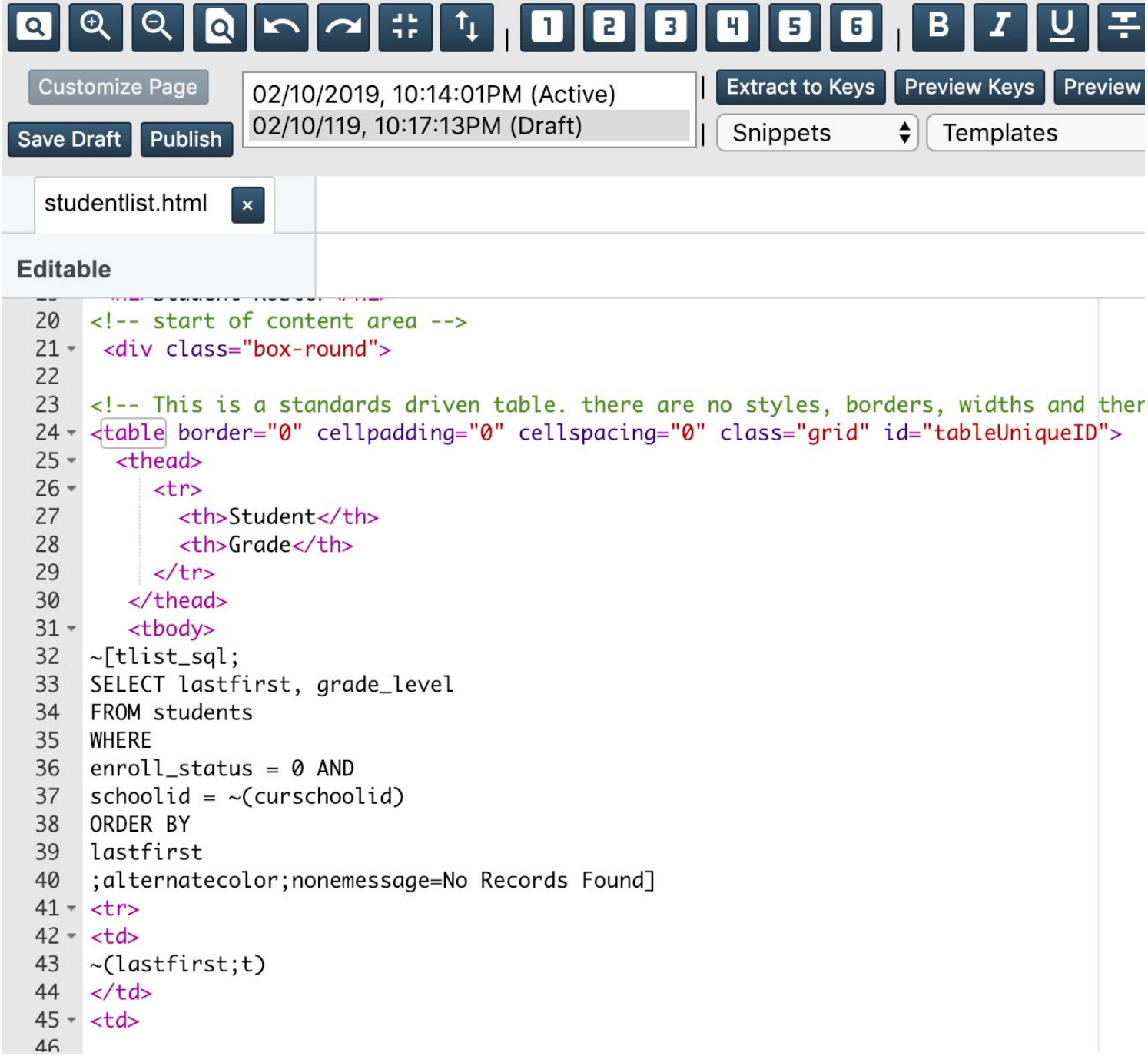
---

- **Tlist_sql in customizations**

```
~[tlist_sql;
{query}
;alternatecolor;nonemessage={none_message}]
{row_template}
[/tlist_sql]
```

**Tlist_sql**

```
~[tlist_sql;
SELECT lastfirst, grade_level
FROM students
WHERE
enroll_status = 0 AND
schoolid = ~(curschoolid)
ORDER BY lastfirst
;alternatecolor;nonemessage=No Records Found]
<tr>
<td>
~(lastfirst;t)
</td>
<td>
~(grade_level;l)
</td>
</tr>
[/tlist_sql]
```


Customize Page
02/10/2019, 10:14:01PM (Active)
02/10/119, 10:17:13PM (Draft)
Extract to Keys
Preview Keys
Preview
Save Draft
Publish
Snippets
Templates
studentlist.html
Editable
<!-- start of content area -->

<!-- This is a standards driven table. there are no styles, borders, widths and ther
<table border="0" cellpadding="0" cellspacing="0" class="grid" id="tableUniqueID">
<thead>
<tr>
<th>Student</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
~[tlist_sql;
SELECT lastfirst, grade_level
FROM students
WHERE
enroll_status = 0 AND
schoolid = ~(curschoolid)
ORDER BY
lastfirst
;alternatecolor;nonemessage=No Records Found]
<tr>
<td>
~(lastfirst;t)
</td>
<td>

PowerSchool

Welcome, **51 z51** | Help | Sign Out

**School:** Apple Grove High School **Term:** 18-19 Semester 2

Your breadcrumbs go here

## Functions

Attendance
Daily Bulletin
Enrollment Summary
Master Schedule
Dashboard
Special Functions
Teacher Schedules

## Reports

System Reports
ReportWorks

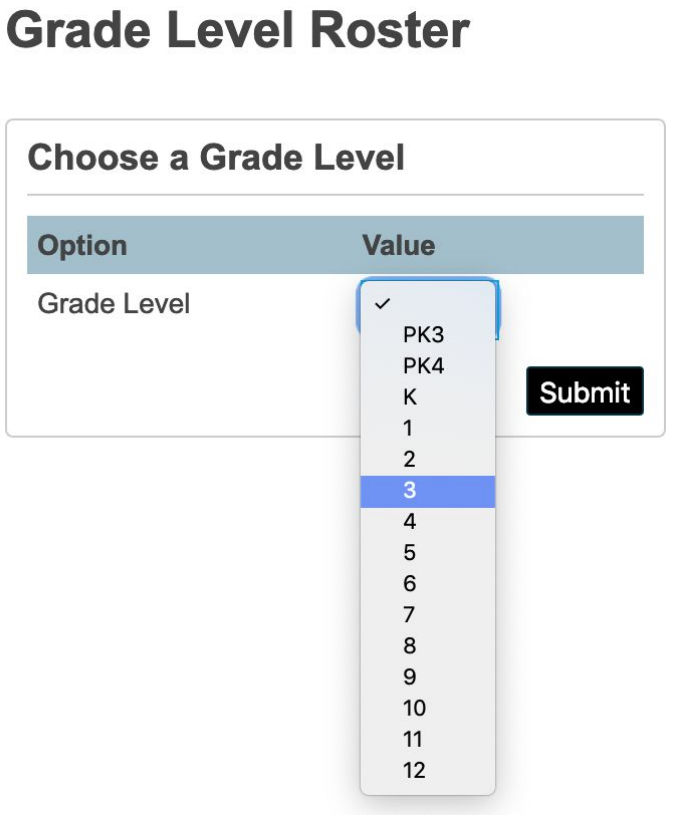
## People

Student Search
Staff Search

# Student Roster

| Student | Grade |
|---|---|
| Baker, Cole | 11 |
| Barlow, Elysa F | 10 |
| Barlow, Gayle D | 12 |
| Bartlett, Jared | 11 |
| Baumann, Amber B | 12 |
| Bennett, Cody B | 9 |
| Bevan, Adam C | 10 |
| Birkeland, Matthew S | 11 |
| Braun, Jessica | 11 |

```
<form action="gradelevelroster2.html"
method="GET">
<table class="linkDescList">
  <tr>
    <th>Option</th>
    <th>Value</th>
  </tr>
  <tr>
    <td>Grade Level</td>
    <td>
    <select name="grade_level">
    <option value=""><option
value="-2">PK3<option value="-1">PK4<option
value="0">K<option>1<option>2<option>3<option>
4<option>5<option>6<option>7<option>8<option>9
<option>10<option>11<option>12
    </select>
    </td>
  </tr>
</table>
<div class="button-row">~[submitbutton]</div>
</form>
```




## Example of sending a gpv to a custom tlist_sql report

```
https://.../gradelevelroster2.html?grade_level=3&btnSubmit=
```

```
<table>
<tr>
    <th>Grade</th><th>Last</th><th>First</th>
</tr>
  ~[tlist_sql;
    select grade_level, last_name, first_name
    from students
    where
    ~(curschoolid) in (0, schoolid)
    and enroll_status = 0
    and grade_level = ~(gpv.grade_level)
    order by lastfirst
  ;]
  <tr>
    <td>~(grade_level)</td>
    <td>~(last_name)</td>
    <td>~(first_name)</td>
  </tr>
  [/tlist_sql]
</table>
```

| Grade | Last | First |
|---|---|---|
| 3 | Adams | Jennifer |
| 3 | Ainsworth | Cole |
| 3 | Berg | Stephanie |
| 3 | Birkeland | Casey |
| 3 | Bourassa | Vanessa |
| 3 | Bradshaw | Charidee |
| 3 | Brakke | Rosally |
| 3 | Brandt | Alan |
| 3 | Braton | Kelly |
| 3 | Brooks | Nicholas |

Example of receiving a gpv in a custom report (grade_level=3)

# Tlist_SQL

---

- Tlist_sql modifiers for the “variables”

  ;l = “Long Integer” (numbers)

  ;t = “Text”

  ;d = “Date”

- https://support.powerschool.com/developer/#/page/ps-html-tags

# Current Selection

---

When working with the Students table, you can query the current selection of students by adding the following WHERE clause:

```
WHERE dcid IN (SELECT dcid FROM
~[temp.table.current.selection:students])
```

# Deprecated?

---

`support.powerschool.com/developer`

## TLIST_SQL

"TLIST_SQL" is the name of a tag that executes SQL right in the page and returns the results. It is **STRONGLY DEPRECATED** in new development work for several reasons: if not used carefully it can easily introduce security holes, reflects improper layering, and because there is almost always a better way to do the same operation. (See PowerQuery reference.)

### What does it mean when something is deprecated?

In the world of software development, "**deprecated**" refers to functions or elements that are in the process of being replaced by newer ones. The term comes from the word "deprecate," which **means** to disapprove of **something**. Feb 25, 2011

# How can I use SQL inside PS?

---

- Enterprise Reporting (APEX)
  - https://support.powerschool.com/article/77492
  - psugcal.org/index.php?title=Enterprise_Reporting

# How can I use SQL inside PS?

---

- sqlReports

# History of sqlReports

---

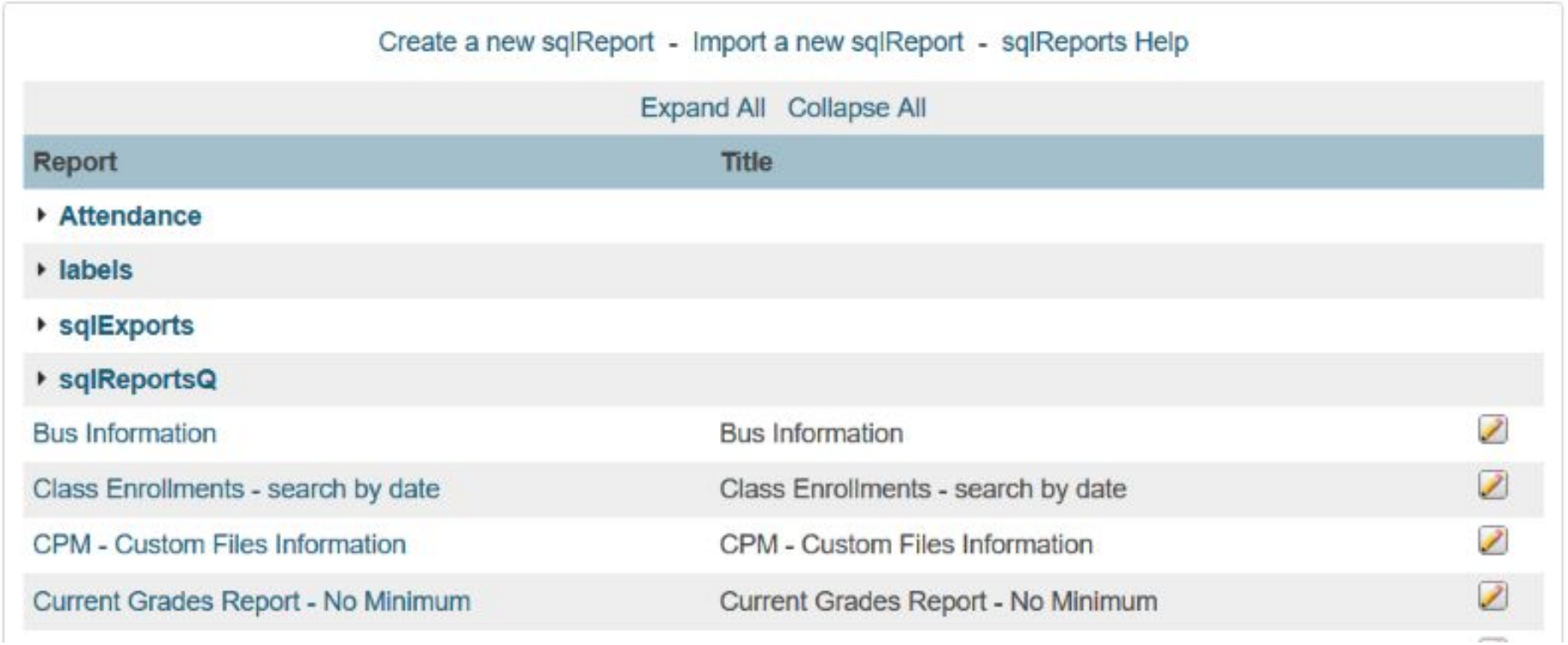
- Dean Dahlvang
  - Released March 2009
  - Through version 3
  - "an ad hoc reporting add-on that can turn simple to medium sql queries in to web based reports in PowerSchool"
- Matt Freund
  - In 2013, Dean turned over development to Matt Freund
  - Coding assistance from Bob McGregor
  - sqlReports 4 was born and first released June, 2013

# What it does

---

- Create new reports in PS that use SQL, hence the name sqlReports.
- Reports act like custom pages, but sqlReports keeps everything in one central location and makes a menu for you.
- Admin or Teacher portal.
- Control access based on security groups.
- The menu system makes it easy to create new reports, edit reports, and is an easy way for your users to find reports.

# What it does


Create a new sqlReport - Import a new sqlReport - sqlReports Help
Expand All Collapse All
Report
Title
Attendance
labels
sqlExports
sqlReportsQ
Bus Information
Bus Information
Class Enrollments - search by date
Class Enrollments - search by date
CPM - Custom Files Information
CPM - Custom Files Information
Current Grades Report - No Minimum
Current Grades Report - No Minimum

# What it does

---

- Reports can be simple tabular reports with buttons to copy, export, or print the results
- Reports can be single series or multi-series charts, with over 25 charts to choose from.

# The SQL Behind the Report

---

Example of the SQL area of a report setup, from a free report called "Current Grades - No Minimum"

Follow regular SQL syntax

Can include parameters, which can be either system variables like ~(curschoolid) or ones that you create, such as the param1 reference in the Where.

**SQL Query**

```
SELECT  s.dcid, s.lastfirst, s.grade_level, pgf.Grade, pgf.Percent, c.Course_Name,
u.LastFirst, to_char(pgf.LastGradeUpdate,'MM/DD/YYYY')

      from Students s
~[if#cursel.%param2%=Yes]
            INNER JOIN ~[temp.table.current.selection:students] stusel ON
stusel.dcid=s.dcid
[/if#cursel]
            INNER JOIN PGFinalGrades pgf ON s.ID = pgf.StudentID
            INNER JOIN Sections sec ON pgf.SectionID = sec.ID
            INNER JOIN Courses c ON upper(sec.Course_Number) =
upper(c.Course_Number)
            INNER JOIN SchoolStaff ss on ss.id = sec.Teacher
            INNER JOIN Users u on u.dcid = ss.users_dcid
            INNER JOIN CC cc on cc.SectionID = sec.ID AND pgf.StudentID =
cc.StudentID

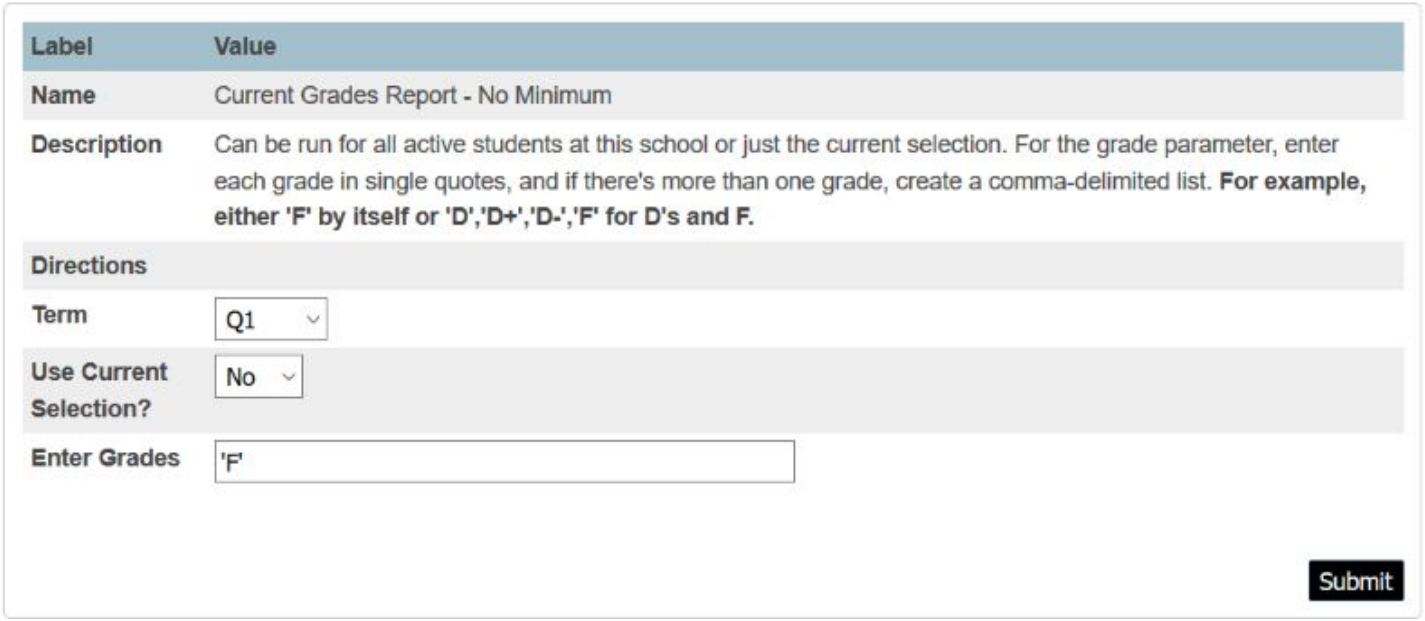
      WHERE s.enroll_status = 0
            and s.schoolid = ~(curschoolid)
            and pgf.FinalGradeName = '%param1%'
           and cc.Termid like '~(curyearid)%%'
           and pgf.Grade IN (%param3%)

      order by s.lastfirst
```

# Running the Report

---

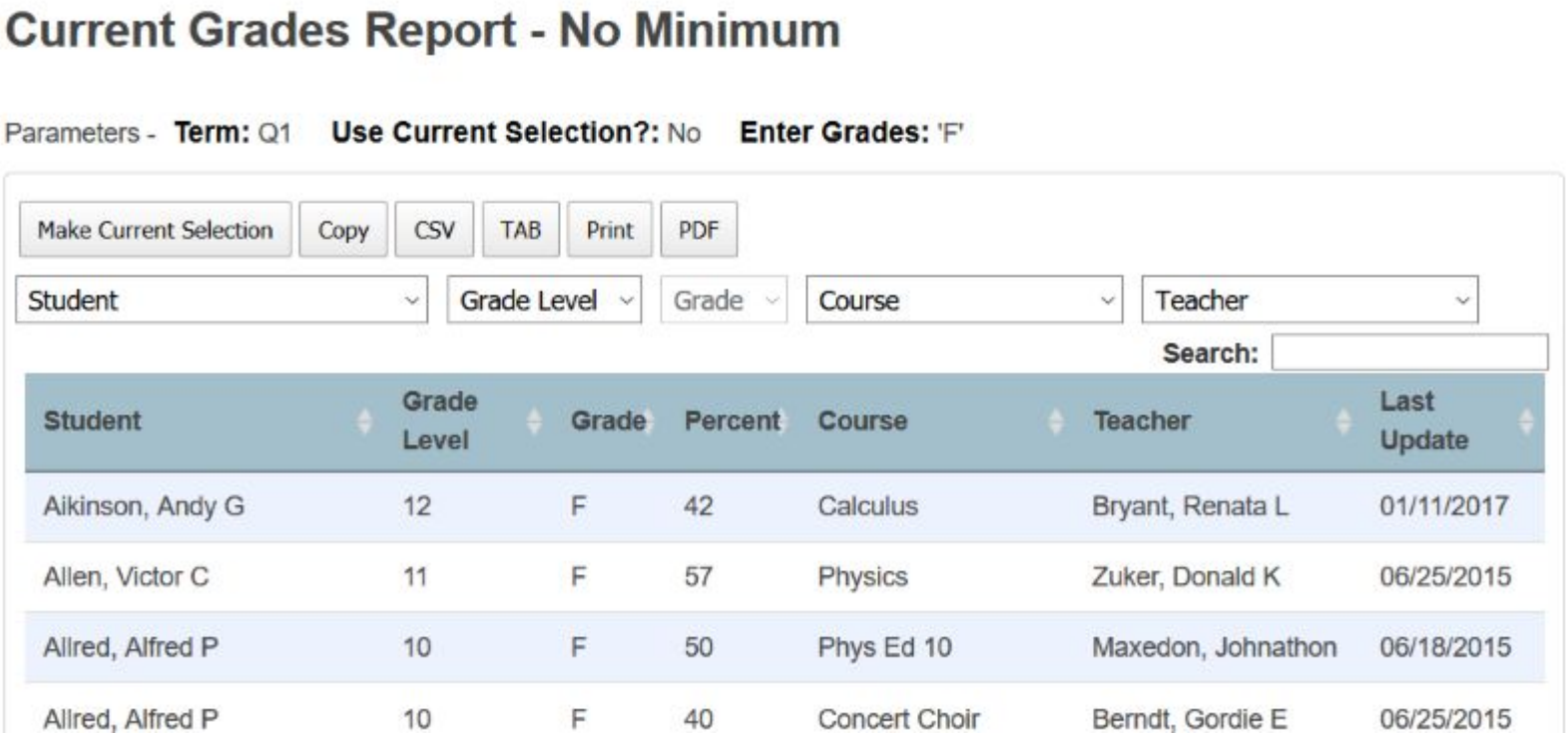
Users click on the report and run it. If you have any parameters, they will be prompted to enter them when they run the report. In the example below, the user is prompted for three things - Term, whether or not to Use Current Selection, and a place to Enter Grades. Same report, multiple uses!



| Label | Value |
|---|---|
| Name | Current Grades Report - No Minimum |
| Description | Can be run for all active students at this school or just the current selection. For the grade parameter, enter each grade in single quotes, and if there's more than one grade, create a comma-delimited list. **For example, either 'F' by itself or 'D','D+','D-','F' for D's and F.** |
| Directions | |
| Term | Q1 |
| Use Current Selection? | No |
| Enter Grades | 'F' |

Submit

# Results Page



## Current Grades Report - No Minimum

Parameters - **Term:** Q1 **Use Current Selection?:** No **Enter Grades:** 'F'

Make Current Selection | Copy | CSV | TAB | Print | PDF

Student | Grade Level | Grade | Course | Teacher

**Search:**

| Student | Grade Level | Grade | Percent | Course | Teacher | Last Update |
|---|---|---|---|---|---|---|
| Aikinson, Andy G | 12 | F | 42 | Calculus | Bryant, Renata L | 01/11/2017 |
| Allen, Victor C | 11 | F | 57 | Physics | Zuker, Donald K | 06/25/2015 |
| Allred, Alfred P | 10 | F | 50 | Phys Ed 10 | Maxedon, Johnathon | 06/18/2015 |
| Allred, Alfred P | 10 | F | 40 | Concert Choir | Berndt, Gordie E | 06/25/2015 |

- Option to copy, export, or print the data
- Make students the current selection.
- The results can be narrowed down by a search or by column filtering.
- Action buttons honor filtering.

# Advantages

---

- No Need to Know How to Create Custom Pages
- No Need to Know How to Code Charts
- It's Available for Admins or Teachers
- Saves Time
- Continuous Development
- Popularity

# Continue at sqlReports.net

---

- Check out additional add-ons
  - sqlReports - Teacher Portal
  - sqlCharts
  - sqlExports
  - sqlReportsQ
  - Saved Params
  - Custom Links
  - sqlFormLetters
- Reports section with free and premium reports you can import
- Article, Documentation and Blog Posts