



Azure SQL Database Essentials

**State of Maine
January 19th, 2024
9:00am - 3:00pm EST**





John Deardurff

Cloud Solution Architect (Global Delivery Team)

Microsoft Certified Trainer (2000 - Current)

MVP: Data Platform (2016 – 2018)

Email: John.Deardurff@Microsoft.com

Twitter: [@SQLMCT](https://twitter.com/SQLMCT)

Website: www.SQLMCT.com

GitHub: github.com/SQLMCT

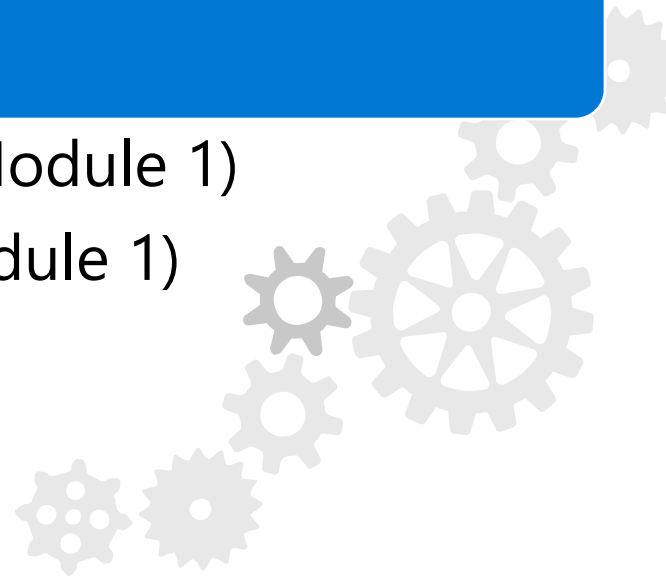


Agenda Day 1

Introduction to Azure SQL Database

- Basic concepts of Azure SQL Database
- SQL Server IaaS vs PaaS Solutions (Moved from Lesson 4)
- How to create Azure SQL Database
- Introduction to Elastic Database Pools

Azure SQL Database Administration

- Various Tools to Manage Azure SQL Database (Moved to Module 1)
 - Scaling Azure SQL Databases Up and Down (Moved to Module 1)
 - Maintenance and Scheduling Jobs (Moved to Day Two)
 - Azure SQL Database Read Scale-Out (Moved to Day Two)
- 

Agenda Day 2

Azure SQL Database Administration (Moved from Day One)

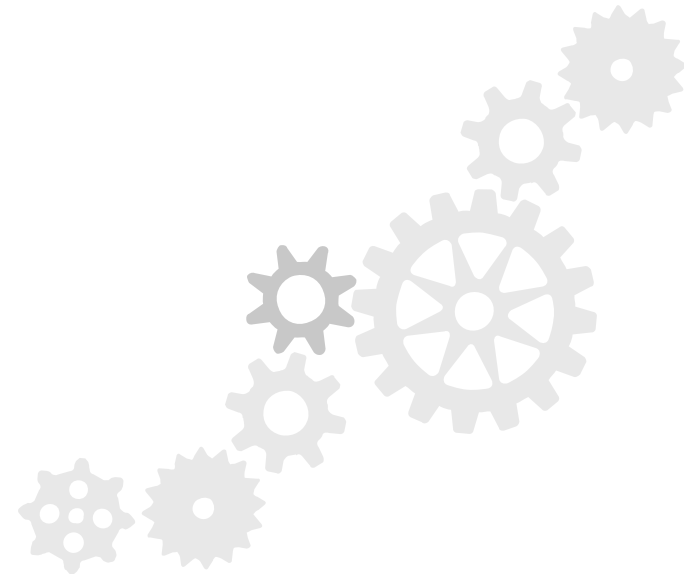
- Maintenance and Scheduling Jobs in Azure SQL Database

Azure SQL Database Business Continuity

- Business Continuity Features in Azure SQL Database
- Disaster Recovery Features in Azure SQL Database
- Backing up and Restoring Azure SQL Database (Moved from Lesson 1)

Manage Security for Azure SQL Database

- Introduction to Azure SQL Database Security
- Implement Entra ID Security
- Manage Logins in Azure SQL Database
- Implement Firewall Rules and Virtual Networks
- Implement Transparent Data Encryption
- Implement Always Encrypted
- Implement Row Level Security
- Implement Dynamic Data Masking



Agenda Day 3

Manage Security for Azure SQL Database (Moved from Day Two)

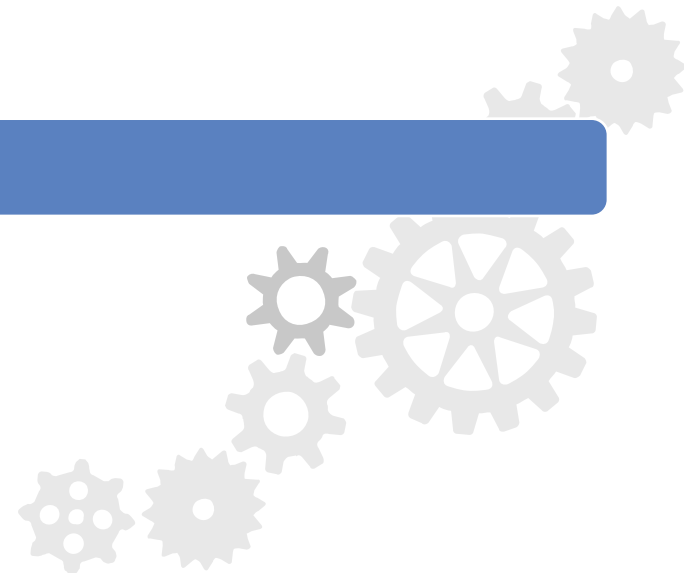
- Implement Auditing for Azure SQL Database
- Data Discovery and Classification
- Implement Microsoft Defender for SQL

Monitoring and Tuning Azure SQL Database

- Monitoring and Troubleshooting Azure SQL Database
- Monitoring Query Performance using Query Performance Insight
- Azure SQL Database Tuning using Automatic Tuning
- Monitoring Azure SQL Database Performance using Extended Events
- Configure Alerts through Azure Portal

Azure SQL Database Migration

- Steps to migrate your database to Azure SQL Database
- Fix database migration compatibility issues
- Identify the right Azure SQL Database SKU
- Migrate a compatible SQL Server database to Azure SQL Database



Lab Times - (Minutes)

M01L02Lab01 - Create an Azure SQL Database (20)

M02L01Lab01 - Various Tools to Manage Azure SQL Database (30)

M02L02Lab01 - Scale up or down an Azure SQL Database (10)

M02L03Lab01 - Elastic Database Jobs (30)

M03L01Lab01 - Point in time restore of an Azure SQL Database (20)

M03L02Lab01 - Configure Geo Replication for an Azure SQL Database (20)

M04L06Lab01 - Implement Always Encrypted (20)

M04L07Lab01 - Implement Row Level Security (10)

M04L10Lab01 - Vulnerability Assessment (20)

M05L02Lab01 - Monitoring Query Performance using Query Performance Insights (15)

M05L05Lab01 - Monitoring Azure SQL Database Performance using Extended Events (10)

M06L05Lab01 - Migrate a Compatible SQL Server Database to Azure SQL Database (30)

M06L06Lab01 - Azure SQL Data Sync (20)

Recommended Links

Welcome to the Azure SQL Database Essentials Workshop.

Below you will find some additional information to help continue your learning journey.

[Azure SQL documentation](#)

[Microsoft Learn: Azure Data](#)

[Try the Azure SQL Workshop](#)

[Azure SQL for Beginners](#)

[Physical security of Azure datacenters](#)

[Microsoft Azure Sustainability](#)

[Choosing the Correct Tools](#)

[Identify Correct Azure SQL SKU](#)

[Plan and manage costs for Azure SQL Database](#)

[Azure Database Migration Guides](#)

[Azure SQL Capacity Planning](#)

[Monitoring and performance tuning Azure SQL DB](#)

[Performance tuning guidance for Azure SQL DB](#)

[Automate Azure SQL Database indexes and statistics](#)

[Autoscaling Azure SQL Databases using Runbooks and Alerts](#)

[Cloud business continuity - disaster recovery](#)

[High availability - Azure SQL Database](#)

[Zone redundancy for Azure SQL Database](#)

[Restore a database from a backup in Azure SQL DB](#)

[Data Integrity checks in Azure SQL Database](#)

Attendee Introductions

Name

Job/Team/Specialty

Time Zone

Experience

Expectations



Get Ready to Participate

Close email and Update Status

Make it interactive

Check all equipment



Dankie Faleminderit **Shukran** Chnorakaloutioun Hvala Blagodaria

Děkuji **Tak** Dank u Tānan Kiitos **Merci** Danke Ευχαριστώ A dank

Mahalo מודה. **Dhanyavād** Köszönöm Takk Terima kasih **Grazie** Grazzi

Thank you!

감사합니다 Paldies Choukrane Ačiū **Благодарам** ありがとうございます

谢谢 Баярлалаа **Dziękuję** Obrigado Mulțumesc **Спасибо** Ngiyabonga

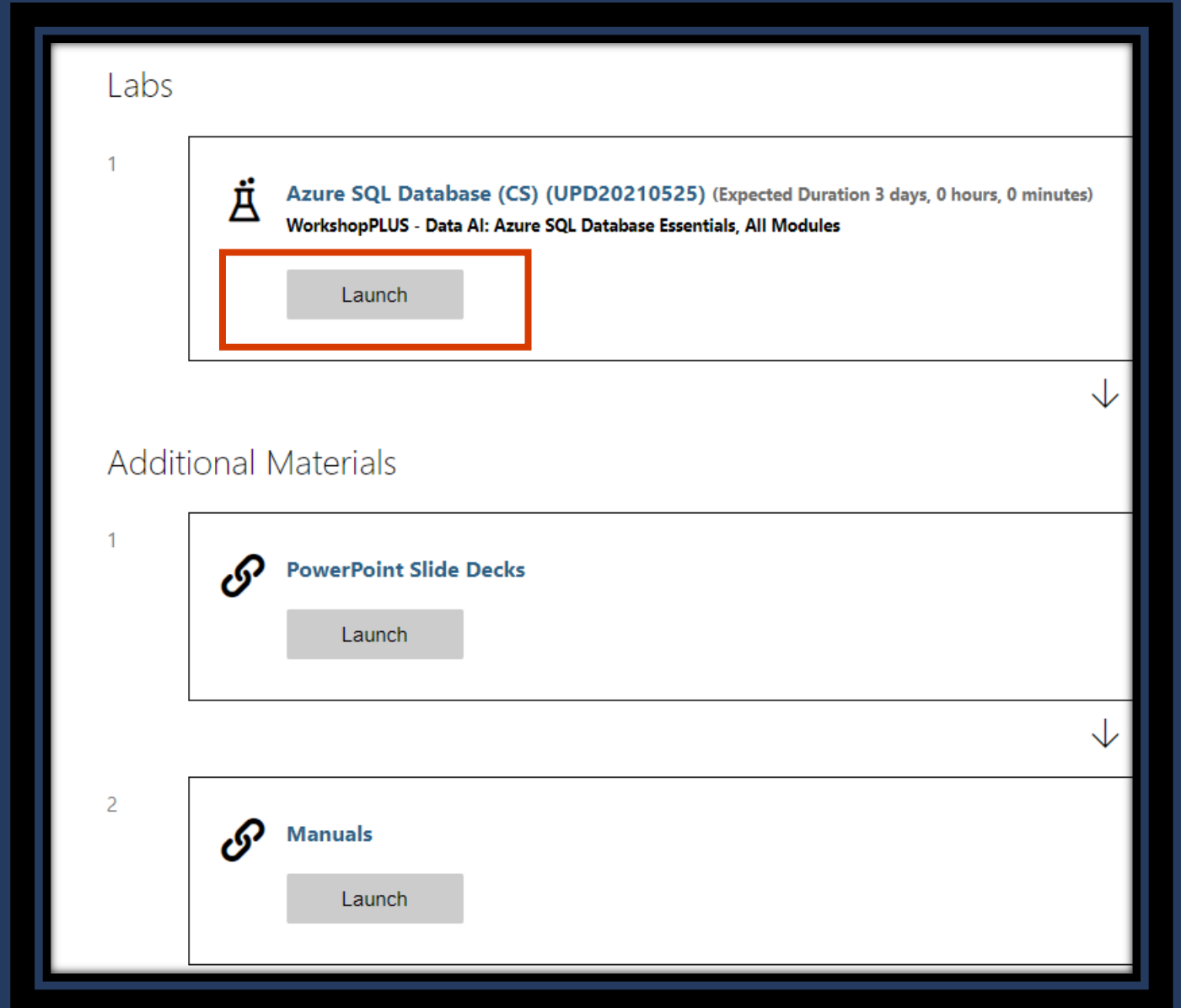
Ďakujem Tack Nandri Kop khun **Teşekkür ederim** Дякую Хвала Diolch



Class Resources


Virtual Lab Environment, Slides
Decks, Lab Manuals, and Demo
Files

In the Labs section, click Launch



Labs

1


 **Azure SQL Database (CS) (UPD20210525)** (Expected Duration 3 days, 0 hours, 0 minutes)
WorkshopPLUS - Data AI: Azure SQL Database Essentials, All Modules

[Launch](#)

↓

Additional Materials


1

 **PowerPoint Slide Decks**

[Launch](#)

↓

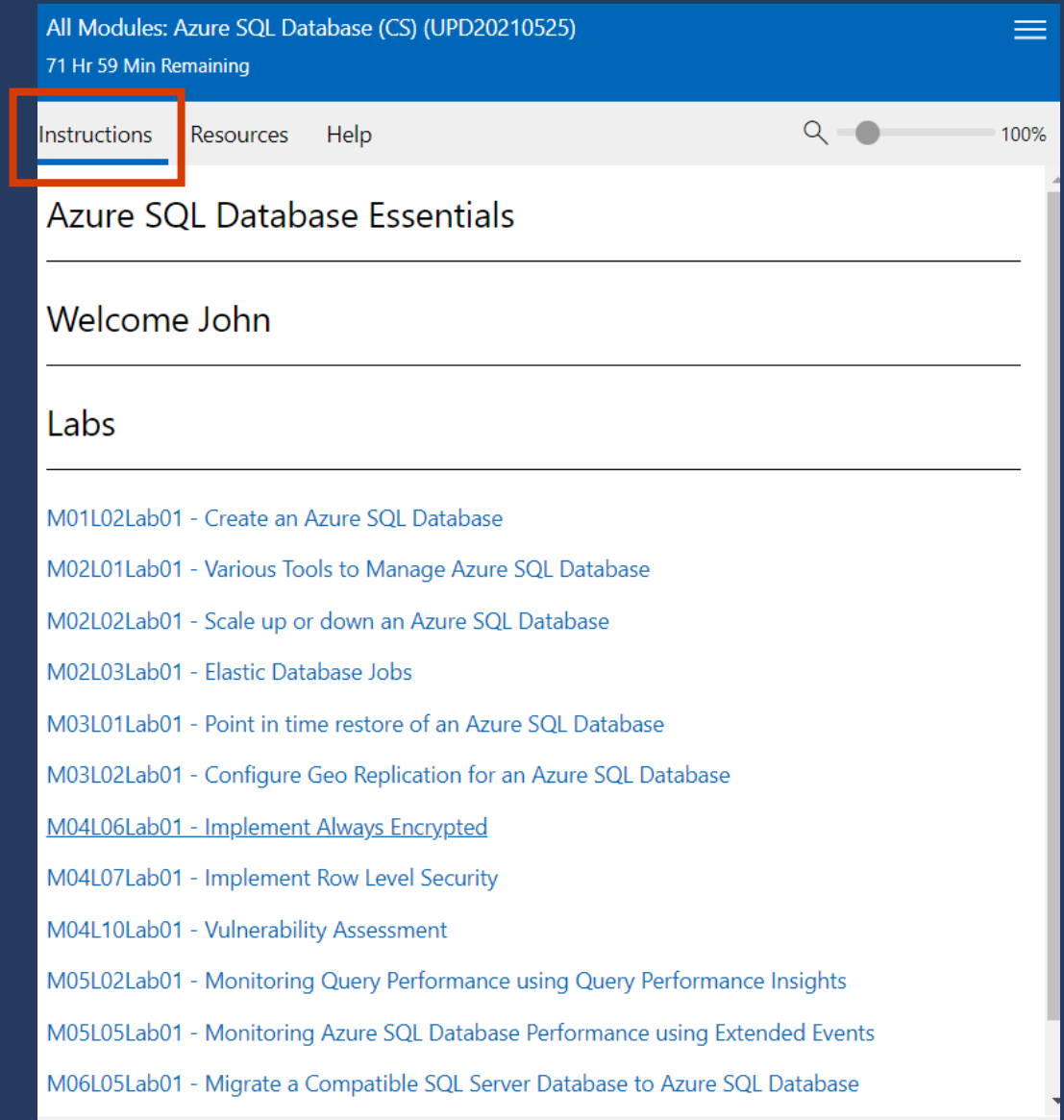
2

 **Manuals**

[Launch](#)

Lab environment

Lab Instructions are shown on the right side of the virtual machine.



The screenshot shows a web application interface for 'All Modules: Azure SQL Database (CS) (UPD20210525)'. The top blue header bar contains the title and a hamburger menu icon. Below it, a grey navigation bar features three tabs: 'Instructions' (highlighted with an orange rectangle), 'Resources', and 'Help'. To the right of the tabs is a search icon and a zoom slider set to 100%. The main content area is titled 'Azure SQL Database Essentials' and includes a 'Welcome John' message. Below this is a section titled 'Labs' which lists twelve lab modules, each with a blue hyperlink:

- [M01L02Lab01 - Create an Azure SQL Database](#)
- [M02L01Lab01 - Various Tools to Manage Azure SQL Database](#)
- [M02L02Lab01 - Scale up or down an Azure SQL Database](#)
- [M02L03Lab01 - Elastic Database Jobs](#)
- [M03L01Lab01 - Point in time restore of an Azure SQL Database](#)
- [M03L02Lab01 - Configure Geo Replication for an Azure SQL Database](#)
- [M04L06Lab01 - Implement Always Encrypted](#)
- [M04L07Lab01 - Implement Row Level Security](#)
- [M04L10Lab01 - Vulnerability Assessment](#)
- [M05L02Lab01 - Monitoring Query Performance using Query Performance Insights](#)
- [M05L05Lab01 - Monitoring Azure SQL Database Performance using Extended Events](#)
- [M06L05Lab01 - Migrate a Compatible SQL Server Database to Azure SQL Database](#)

Virtual Machine Lab Environment

Use the Ctrl+Alt+Delete button to logon to the virtual machine.

You can click on the **T** next to Username and Password to paste in the virtual machine.

[Instructions](#) [Resources](#) [Help](#)

Azure Portal

URL <https://portal.azure.com/#home>


Subscription **T** 30705a9e-9b1a-4bd3-ae9e-a431efb0c9bc

Username **T** LabUser-18676516@lodsasdoutlook.onmicrosoft.com

Password **T** Gp0Ae4@!Dg

Resource Group

AzureDB-RG-lod18676516

**AzureSQLDB**

Username **T** Administrator

Password **T** Pa\$\$w0rd

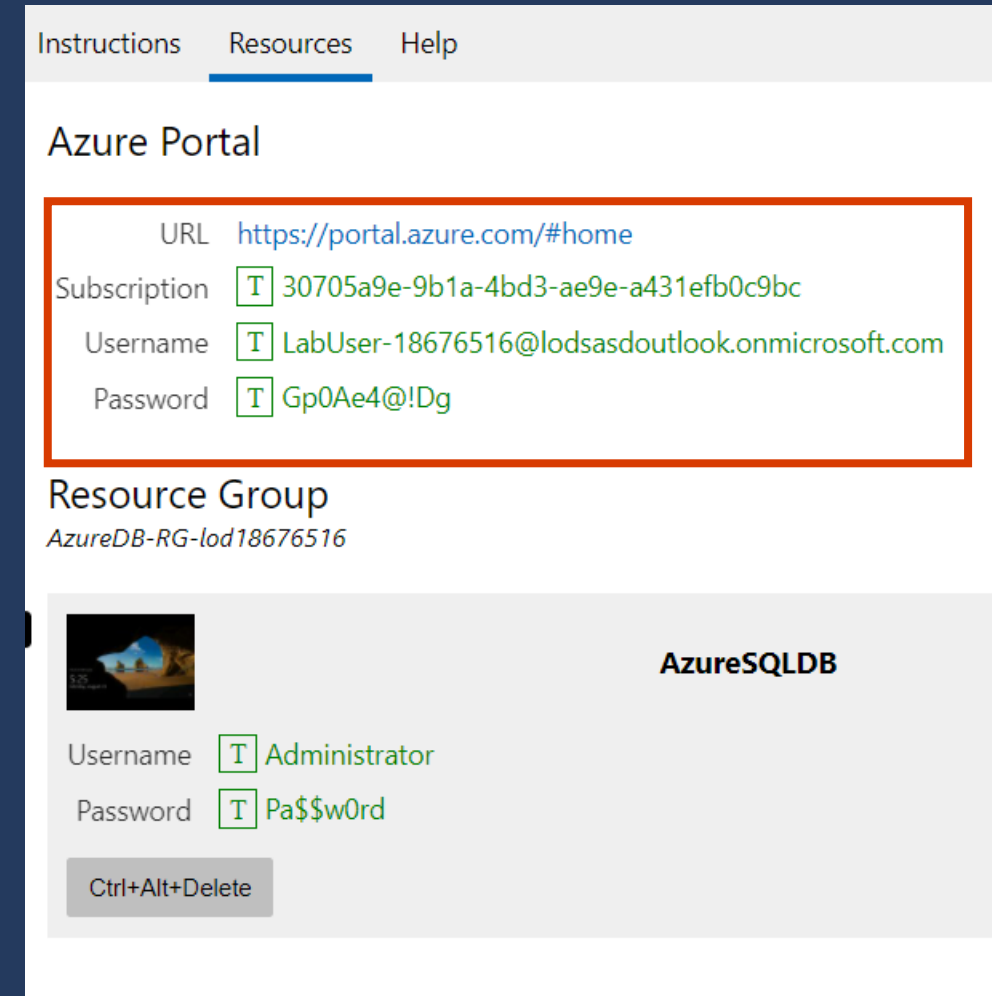
Ctrl+Alt+Delete

Azure Portal Environment

You must access from the Azure Virtual Machine.

Each lab has a unique Subscription, Username, and Password

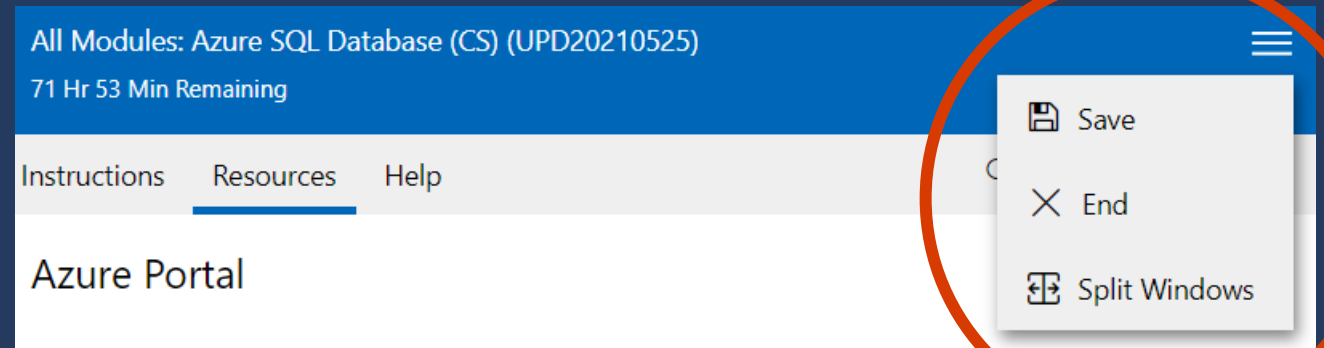
You can click on the **T** next to Username and Password to paste in the virtual machine.



The screenshot displays the Azure Portal interface. At the top, there are tabs for 'Instructions', 'Resources' (which is selected), and 'Help'. Below the tabs, the heading 'Azure Portal' is visible. A red rectangular box highlights a section containing connection details: 'URL' with the value 'https://portal.azure.com/#home', 'Subscription' with a green 'T' icon and the value '30705a9e-9b1a-4bd3-ae9e-a431efb0c9bc', 'Username' with a green 'T' icon and the value 'LabUser-18676516@lodsasdoutlook.onmicrosoft.com', and 'Password' with a green 'T' icon and the value 'Gp0Ae4@!Dg'. Below this box, the heading 'Resource Group' is shown, followed by the identifier 'AzureDB-RG-lod18676516'. Further down, there is a section for 'AzureSQLDB' which includes a small icon of a landscape. Below the icon, the 'Username' is 'Administrator' and the 'Password' is 'Pa\$\$w0rd', both preceded by a green 'T' icon. At the bottom of this section is a button labeled 'Ctrl+Alt+Delete'.

Lab Time Remaining

- Select **Save** before leaving the Lab environment.
- If you click **End** the lab will reset.
- You can save up to 5 labs for up to 7 days.
- The lab environment is available for 180 days.
- Split Windows will allow you to move the instructions to a separate screen.



Get Ready to Participate

Close email and Update Status

Make it interactive

Check all equipment



Dankie Faleminderit **Shukran** Chnorakaloutioun Hvala Blagodaria

Děkuji **Tak** Dank u Tānan Kiitos **Merci** Danke Ευχαριστώ A dank

Mahalo מודה. **Dhanyavād** Köszönöm Takk Terima kasih **Grazie** Grazzi

Thank you!

감사합니다 Paldies Choukrane Ačiū **Благодарам** ありがとうございます

谢谢 Баярлалаа **Dziękuję** Obrigado Mulțumesc **Спасибо** Ngiyabonga

Ďakujem Tack Nandri Kop khun **Teşekkür ederim** Дякую Хвала Diolch

