



HEDERLIGE HARRYS BILAR

James William Martinsson Co

Welcome to the documentation for Hederlige Harrys Bilar database. In this document, you will find the different functionalities and descriptions of why this database was created and how you can use it to its fullest capabilities. The script is written using SQL Server Management Studio (SSMS).

This is the final assignment for my course in Nackademin called SQL 2 – Advanced (Fördjupning). Some functions in this document would normally be handled by external programs. However, for this project, we decided to be creative and implement them solely in SSMS.

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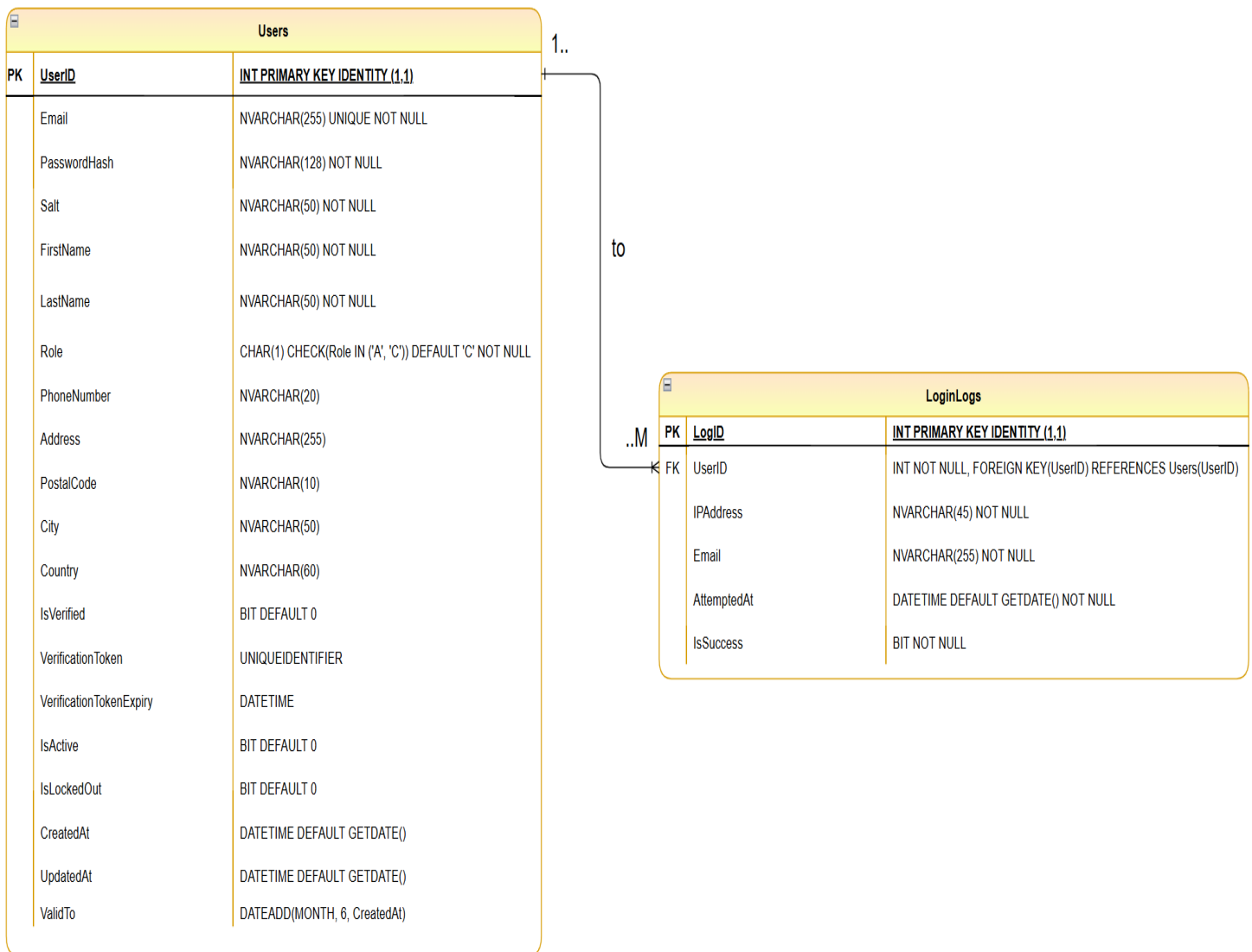
Files

These are the files currently being used for this project:

- HHB_Documentation – Documentation for the Hederlige Harrys Bilar project (This document).
- HHB_ERDiagram - Database Model for this project (Available in two formats: DrawIO and PNG).
- HHB_SQLScript - The main code, just execute this file into your SSMS and you're good to go.
- HHB_SQLQueries - This is where you execute the stored procedures, views and other things you need to check that the actual Script works.

Database Model (ER-Diagram)

Hederlinge Harrys Bilar



Tables

Schema Users

Primary Key: 

Tables Users

Foreign Key:  →

	Key	Name	Data Type	Null	Attributes	References	Description
1.		UserID	INT	No	PRIMARY KEY, IDENTITY(1,1)	-	Unique identifier for users
2.		Email	NVARCHAR(255)	No	UNIQUE	-	User's email (must be unique)
3.		PasswordHash	NVARCHAR(128)	No		-	Hashed password (SHA2_512)
4.		Salt	NVARCHAR(50)	No		-	Salt for password hashing
5.		FirstName	NVARCHAR(50)	No		-	User's first name
6.		LastName	NVARCHAR(50)	No		-	User's last name
7.		Role	CHAR(1)	No	CHECK(Role IN ('A', 'C')) DEFAULT 'C'	-	Users role (A = Admin or C = Customer), Default C
8.		PhoneNumber	NVARCHAR(20)	Yes		-	User's phone number
9.		Address	NVARCHAR(255)	Yes		-	User's address
10.		PostalCode	NVARCHAR(10)	Yes		-	Postal code
11.		City	NVARCHAR(50)	Yes		-	City name
12.		Country	NVARCHAR(60)	Yes		-	Country name
13.		IsVerified	BIT	No	DEFAULT 0	-	If user is verified = 1, otherwise 0
14.		VerificationToken	UNIQUEIDENTIFIER	Yes		-	Token for email verification
15.		VerificationTokenExpiry	DATETIME	Yes		-	Expiration date of verification token

16.		IsActive	BIT	No	DEFAULT 0	-	If account is active = 1, otherwise 0
17.		IsLockedOut	BIT	No	DEFAULT 0	-	If account is locked = 1, otherwise 0
18.		CreatedAt	DATETIME	No	DEFAULT GETDATE()	-	Timestamp when the user was created
19.		UpdatedAt	DATETIME	No	DEFAULT GETDATE()	-	Timestamp when the user was last updated
20.		ValidTo	Computed (AS)	-	AS DATEADD(MONTH, 6, CreatedAt)	-	Computed column: user valid for 6 months

Schema



Users

Primary Key: 

Tables

LoginLogs

Foreign Key:  →

	Key	Name	Data Type	Null	Attributes	References	Description
1.		LogID	INT	No	PRIMARY KEY, IDENTITY(1,1)	-	Unique identifier for each login attempt
2.	 →	UserID	INT	No	FOREIGN KEY	Users.Users(UserID)	References the user attempting to login
3.		IPAddress	NVARCHAR(45)	No		-	IP address of the user attempting to login
4.		Email	NVARCHAR(255)	No		-	Email used for login attempt
5.		AttemptedAt	DATETIME	No	DEFAULT GETDATE()	-	Timestamp of login attempt
6.		IsSuccess	BIT	No		-	If login was successful = 1, otherwise 0

Email settings and activation

```
-- Activate Database Mail.
EXEC sp_configure 'show advanced options', 1;
RECONFIGURE;

EXEC sp_configure 'Database Mail XPs', 1;
RECONFIGURE;

-- Email Profile, Settings
IF EXISTS (SELECT 1 FROM msdb.dbo.sysmail_profile WHERE name = 'Hederlige Harrys Bilar AB')
BEGIN
    EXEC msdb.dbo.sysmail_delete_profile_sp @profile_name = 'Hederlige Harrys Bilar AB';
END

-- Add the new profile
EXEC msdb.dbo.sysmail_add_profile_sp
    @profile_name = 'Hederlige Harrys Bilar AB',
    @description = 'HHB ABs profile for sending emails';

IF EXISTS (SELECT 1 FROM msdb.dbo.sysmail_account WHERE name = 'Hederlige Harrys Bilar AB') -- Removes the account if it exists.
BEGIN
    EXEC msdb.dbo.sysmail_delete_account_sp @account_name = 'Hederlige Harrys Bilar AB';
END
```

Emails would normally be sent from an external program, but we don't have access to that in this case. This code is added for us to be able to send an email through our stored procedures like:

- Register – An email will be sent with the verification code when a user has been created through this procedure.
- ForgottenPassword – An email will be sent with the new verification code / reset code when a user has requested to recover their password through this procedure.

Views

UserLoginActivity

This view shows each user's last successful and unsuccessful login attempts.

UserLoginAttempts

This view displays each user's total amount of login attempts as well as the average successful attempts per user

Stored Procedures

Register

This stored procedure allows a user to create a new account and adds the user to the system.

- The stored procedure sends a verification email to the user.
- The procedure has a specific format for their email that must be followed to prevent non-email formatted words to be used as an email.
- This procedure ensures that a password must have a min. of 8 letters, 1 uppercase letter, 1 number and 1 symbol. If all these requirements aren't met, then the registration will fail.
- The procedure makes sure that the user's password is hashed and salted for better security. SHA2_512 is the hash function used for password hashing.
- The verification code is set to only be valid for one day and a one-time use.
- When a successful registration is done, the user's information will be inserted into the table "Users.Users".

Verification

This stored procedure allows the user to verify their newly created account with the verification code they've gotten from the verification email.

- Verify your account by entering your email and the verification code you got from the verification email.
- Checks if the email exists.
- Activates and verifies the account, empties the verification token.
- Checks if the verification code is valid.

Forgotten Password

This stored procedure allows a user who has forgotten their password to receive an email with a new verification code to reset their password.

- Ensure that the password is not changed if the account is locked.
- Checks if the email exists.
- Generates a new verification token that is only valid for one day and a one-time use.
- Send an email to the user with the new verification code.

Reset Password

SetForgottenPassword, this stored procedure allows the user to use the verification code they recently got from the Forgotten Password procedure and reset their password.

- Email, verification token and creating your new password.
- The new password is hashed and salted.
- Checks if the email and verification token is valid.
- This procedure ensures that a password must have a min. of 8 letters, 1 uppercase letter, 1 number and 1 symbol. If all these requirements aren't met, then the registration will fail.
- Ensures that the new password cannot be the same as the old password for better security.
- When all requirements are met, the procedure will update the user's new password, empty the verification token and activate and verify the user's account

Login

This stored procedure allows the user to login to their account.

- Login using your email, password and IP Address (X.X.X.X ex: 192.0.2.146. You can create a hypothetical IP Address if you don't want to use your own). This procedure does not gather the users IP Address automatically hence why you must insert it manually (In reality, an external program would be gathering the users IP Address automatically but in this case it doesn't).
- Check if the email exists.
- If a user has tried to login more than three times within 15 minutes and failed, then the account gets locked.
- Checks if the account is locked due to too many login attempts.
- Checks if the account is verified.
- Check if account is active.
- The account must be verified, active and not locked to be able to login.

Indexes

Users Table

idx_users_email

This is a unique index that ensures that no duplicate email exists in the database while improving the performance of queries searching for users by email.

idx_users_role

This index enhances the performance of queries filtering users based on their role (A or C), making role-based lookups more efficient.

idx_users_email_lockedout

This composite index improves the performance of queries filtering users by email and lockout status, optimizing account security checks.

LoginLogs Table

idx_loginlogs_email

This index speeds up queries searching for login attempts associated with a specific email address.

idx_loginlogs_ipaddress

This index enhances the performance of queries filtering login attempts by IP address, useful for tracking suspicious activity.

idx_loginlogs_attemptedat

This index improves the efficiency of queries filtering or sorting login attempts based on timestamp, optimizing login activity analysis.

Long-Term Improvements

User Account Management

For educational purposes, this project focused on creating a functional database and user account management system for a car dealership called “Hederlige Harrys Bilar”. We created a SQL script that allows the user to register and log in. If this were a real project, we would develop a website using one of three common backend technologies: PHP, Python, or Node.js.

PHP

It’s one of the go-to language for server-side web development. Using MySQL or MariaDB as the database backend. It’s widely used for building dynamic web applications that include user registration, login flows and password resets.

Python

Python is a versatile and highly readable programming language with frameworks like Flask and Django. It provides powerful tools for web development. Due to its clear and concise syntax making it easy to write maintainable and secure authentication systems. Python also includes libraries such as **bcrypt** and **PyJWT**, which enable strong password hashing and token-based authentication.

Node.js

It’s powered by JavaScript and is well known for fast, event-driven and non-blocking I/O models. Like the other two backend technologies, Node.js efficiently handles user registrations, logins, and password management. Node.js is perfect for handling high concurrency for websites/applications that’s expecting frequent user interactions.

With the help of one of these backend technologies, we would provide Hederlige Harrys Bilar with a functional database and User Account Management system.

User Experience

Improving the user experience is one of the areas we would focus on, making it easier for our users to use our website would help the overall effectiveness of online purchases.

Just like many other websites, we would implement “**Social Login Integration**” which allows a user to login through third-party accounts such as Google, Facebook or GitHub using OAuth2.0 or OpenID Connect for faster and more convenient registration process.

Ensuring that the website has a “**Responsive design**” for mobile devices and tablets enhances the user experience for a wider audience.

Email

Our script allows SQL to send an email with the verification token. However, sending emails directly from SQL is not ideal due to security concerns and because SQL’s primary purpose is data storage. Just like User Account Management, we would be using one of the three backend technologies we mentioned to send our verification emails.

Two-Factor Authentication (2FA)

2FA adds an extra layer of security by requiring the user to provide two forms of verification. Usually by a password they themselves set and something they have (a device or token) such as Google Authenticator, Authy or Microsoft Authenticator. These authenticators generate temporary codes that the user must enter after providing their password. It could also be SMS-Based 2FA although less secure where the user gets sent a one-time password via SMS to the user's mobile phone.

Database

For a database that stores user's data, we will need to create a more secure database than we've done with this current project. That would mean that we would need to look to implement *audit trails* for sensitive user actions like password changes, login attempts or email updates.

Backup & Disaster Recovery is also instrumental in ensuring a safer database for a company with plenty of customers. By setting up automated database backups and regular testing of disaster recovery procedures, you can ensure your data is safe and can be restored in case of an issue.

Automated Cleanup for logs in our database such as our Login Logs table will be crucial to ensure that old data doesn't take up too much space.

Indexing and adding proper indexes for a big database is crucial for faster performance.

User Roles & Permissions

Although there are two roles, "A" for Admin and "C" for Customer (the default role) no specific permissions have been assigned to them yet. In future improvements, we plan to implement role-based permissions to enhance security. Customers should only have access to the information necessary for their interactions, while administrators will be granted the appropriate permissions to perform their tasks efficiently.

HHB – SQLQueries

OBS! Execute the HHB_SQLScript file before trying to run the commands for this file and use the zoom to read the screenshots that are unreadable due to size otherwise.

In this section we will review the provided SQL file, which contains execution commands for stored procedures, views and SELECT statements to retrieve data from the Users and LoginLogs tables. Screenshots will be included to show the expected results, along with detailed explanations of how each query functions. This will help ensure that when you run the queries yourself, you achieve the same or similar results, depending on the data you input. You will need to execute some execution commands separately or you'll get errors due to formats set in the Stored Procedures.

SELECT Statements

```
USE HederligeHarrysBilar;  
GO  
  
-- Users Table,  
FROM Users.Users;  
  
-- LoginLogs Table,  
FROM Users.LoginLogs;
```

Start off by using the “USE HederligeHarrysBilar;” code to ensure that it’s the database that’s selected in SSMS.

You can also select the whole code in that screenshot, and you’ll get a result for Users.Users and Users.LoginLogs:

Results	Messages																				
	UserID	Email	PasswordHash	Salt	FirstName	LastName	Role	PhoneNumber	Address	PostalCode	City	Country	IsVerified	VerificationToken	VerificationTokenExpiry	IsActive	IsLockedOut	CreatedAt	UpdatedAt	ValidTo	
1	1	johan.lindberg@hhb.com	0a180c3d4e3f64	106C1083-797D-4389-AD30-C813F78A8F78	Johan	Lindberg	A	+46 72 903 03 54	Skogsgatan 12	111 22	Stockholm	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
2	2	erik.nilsson@hhb.com	0a180c3d4e3f66	266C1083-797D-4389-AD30-C813F78A8F7C	Erik	Nilsson	A	+46 72 903 45 67	Kungsgatan 78	114 89	Malmö	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
3	3	karl.johansson@hhb.com	0a180c3d4e3f68	3F6C1083-797D-4389-AD30-C813F78A8F7D	Karl	Johansson	A	+46 73 901 12 34	Linnégatan 22	116 78	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
4	4	oskar.persson@hhb.com	0a180c3d4e3f63	456C1083-797D-4389-AD30-C813F78A8F7E	Oskar	Persson	A	+46 74 902 56 78	Bergsgatan 5	118 90	Livingsjö	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
5	5	matias.fredriksson@hhb.com	0a180c3d4e3f65	5H6C1083-797D-4389-AD30-C813F78A8F7F	Matias	Fredriksson	A	+46 75 903 78 90	Södra Vägen 8	120 11	Lund	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
6	6	peter.holm@hhb.com	0a180c3d4e3f66	6R6C1083-797D-4389-AD30-C813F78A8F80	Peter	Holm	A	+46 76 904 90 12	Västra Hamngatan 16	122 33	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
7	7	robin.hedlund@hhb.com	0a180c3d4e3f66	786C1083-797D-4389-AD30-C813F78A8F81	Robin	Hedlund	A	+46 77 905 12 34	Skogstjärn 7	124 55	Norrköping	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
8	8	daniel.ek@hhb.com	0a180c3d4e3f65	8K6C1083-797D-4389-AD30-C813F78A8F82	Daniel	Ek	A	+46 78 906 34 56	Gölgatan 3	126 77	Luleå	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
9	9	anna.svensson@gmail.com	0a180c3d4e3f66	9L6C1083-797D-4389-AD30-C813F78A8F83	Anna	Svensson	C	+46 72 001 23 45	Drottninggatan 45	113 56	Göteborg	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
10	10	lisa.andersson@yahoo.com	0a180c3d4e3f67	AL6C1083-797D-4389-AD30-C813F78A8F84	Lisa	Andersson	C	+46 73 002 34 56	Vasagatan 9	115 67	Uppsala	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
11	11	emma.karlsson@outlook.com	0a180c3d4e3f68	BL6C1083-797D-4389-AD30-C813F78A8F85	Emma	Karlsson	C	+46 74 003 45 67	Östra Skogsgatan 33	117 89	Örebro	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
12	12	henrik.stenberg@yahoo.com	0a180c3d4e3f69	CL6C1083-797D-4389-AD30-C813F78A8F86	Henrik	Stenberg	C	+46 75 004 56 78	Lilla Nygatan 5	130 21	Falun	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
13	13	linda.bergstrom@outlook.com	0a180c3d4e3f69	DL6C1083-797D-4389-AD30-C813F78A8F87	Linda	Bergström	C	+46 76 005 67 89	Östra Hamngatan 18	131 32	Östersund	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
14	14	johan.nilsson@hhb.com	0a180c3d4e3f69	FL6C1083-797D-4389-AD30-C813F78A8F88	Johan	Nilsson	C	+46 77 006 78 90	Skogsgatan 12	132 43	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-17 20:30:55.853	2025-02-17 20:30:55.853	2025-08-17 20:30:55.853	
LogID	UserID	IPAddress	Email	AttemptedAt	IsSuccess																
1	17	79.85.156.124	oliver.nilsson@gmail.com	2025-02-12 01:00:00.000	0																
2	17	79.85.156.124	oliver.nilsson@gmail.com	2025-02-12 01:10:00.000	0																
3	17	79.85.156.124	oliver.nilsson@gmail.com	2025-02-12 01:15:00.000	1																
4	18	79.85.156.127	kristin.forsberg@yahoo.com	2025-02-13 02:05:00.000	1																
5	18	79.85.156.127	kristin.forsberg@yahoo.com	2025-02-13 02:10:00.000	1																
6	19	79.85.156.129	markus.holm@outlook.com	2025-02-14 03:05:00.000	0																
7	19	79.85.156.129	markus.holm@outlook.com	2025-02-14 03:10:00.000	0																
8	19	79.85.156.129	markus.holm@outlook.com	2025-02-14 03:15:00.000	0																
9	20	79.85.156.132	josefine.eriksson@gmail.com	2025-02-15 04:05:00.000	1																

The data is all generated through ChatGPT so we don’t have to worry about GDPR here, these are the two tables built for this project, and you can see all the different columns and the data inside it. Notice how the VerificationToken and VerificationTokenExpiry columns are “NULL”, that’s because these accounts were manually added and not created through our “Register” procedure. Other explanations for that are as documented, the data inside those two columns gets removed after being used once. It’s a table for every users account information registered in the system.

If we look at LoginLogs you can see 4 different users who’ve tried to log in at different points of time.

Oliver Nilsson – Tried to log in 2025-02-12 between 01:00 – 01:15 and was successful on his last attempt.

Kristin Forsberg – She was successful on both of her login attempts.

Markus Holm – Tried to log in 2025-02-14 between 03:00 – 03:15 but was unsuccessful on all his attempts and ended up getting his account locked.

Josefine Eriksson – She managed to log in on her first try.

System Mail – Adding a Database Mail Account

```
-- Add a new account, change the "test" if you want to change anything otherwise just execute the code. I would recommend to not change anything at all.
EXEC msdb.dbo.sysmail_add_account_sp
    @account_name = 'Hederlige Harrys Bilar AB',
    @description = 'Test mejl',
    @email_address = 'Testmejl@gmail.com',
    @display_name = 'Hederlige Harrys Bilar AB',
    @mailserver_type = 'SMTP',
    @mailserver_name = 'smtp.gmail.com',
    @port = 587,
    @enable_ssl = 1,
    @username = 'Testmejl@gmail.com',
    @password = 'test test test test'; -- Google AppPassword, normally this is required so that the program can send an email to a Gmail account, that isn't something you need to go through.
    -- We added this code so that the Stored Procedures send emails when executed. So technically you don't need to change anything here.
```

This script adds a new Database Mail account in SQL Server using the sysmail_add_account_sp stored procedure. The account is configured to send emails via Gmail's SMTP server.

- Account Name: Hederlige Harrys Bilar AB (Can be modified if needed)
- Email Address: Testmejl@gmail.com
- SMTP Server: smtp.gmail.com (Port 587, SSL enabled)
- Authentication: Uses a Google App Password for secure authentication.

This setup allows stored procedures to send emails via this configured mail account. No modifications are necessary unless specific changes are required for a different email setup.

When executing this code, the result will be "Commands completed successfully". You can just leave it as is, the purpose for this code is only for the procedure to have the function to send emails. Running this is not a must so you can technically skip this code.

Register

```
EXEC Register --Register a new account
    @Email = 'test@test.com', -- Enter your email
    @Password = 'Testttt1!', --Enter your password (Min. 8 Letters | Min. 1 Uppercase letter | Min. 1 Number | Min. 1 Symbol | Ex: Hejhej1!)
    @FirstName = 'Test', -- Enter your first name
    @LastName = 'Testsson', -- Enter your last name
    @PhoneNumber = '+46 74 452 05 50', -- Enter your phone number (+46 XX XXX XX XX is the recommended format)
    @Address = 'Testvägen 1', -- Enter your address
    @PostalCode = '165 56', -- Enter your postal code
    @City = 'Testtuna', -- Enter your city
    @Country = 'Testlandet'; -- Enter your country
```

This Stored Procedure allows you to register a new account to the database, insert your account information by replacing the data with "test" in them with your own credentials.

```
EXEC Register --Register a new account
    @Email = 'james.martinsson@jcab.com', -- Enter your email
    @Password = 'Hejsan123!', --Enter your password (Min. 8 Letters | Min. 1 Uppercase letter | Min. 1 Number | Min. 1 Symbol | Ex: Hejhej1!)
    @FirstName = 'James', -- Enter your first name
    @LastName = 'Martinsson', -- Enter your last name
    @PhoneNumber = '+46 75 452 05 50', -- Enter your phone number (+46 XX XXX XX XX is the recommended format)
    @Address = 'Kronvägen 1', -- Enter your address
    @PostalCode = '191 56', -- Enter your postal code
    @City = 'Sollentuna', -- Enter your city
    @Country = 'Philippines'; -- Enter your country
```

Results:

Messages	
(1 row affected)	
Mail (Id: 35) queued.	
Your account has been created, an email has been sent to james.martinsson@jcab.com. Please verify your account before logging in.	
Completion time: 2025-02-21T17:21:12.0383877+01:00	

By using the SELECT statement for Users.Users, a new account will be created for you:

Results Messages																			
UserId	Email	PasswordHash	Salt	FirstName	LastName	Role	PhoneNumber	Address	PostalCode	City	Country	IsVerified	VerificationToken	VerificationTokenExpiry	IsActive	IsLockedOut	CreatedAt	UpdatedAt	ValidTo
4	vikas.persson@hhb.com	0a182c3d4e5f65	456C1083-797D-4389-AD30-C813F78AF7E	Olav	Persson	A	+46 74 902 56 78	Bergsgatan 5	118 90	Lindköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
5	mattias.fredriksson@hhb.com	0a182c3d4e5f65	546C1083-797D-4389-AD30-C813F78AF7F	Mattias	Fredriksson	A	+46 75 903 79 90	Södra Vägen 8	120 11	Lund	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
6	peter.holm@hhb.com	0a182c3d4e5f66	646C1083-797D-4389-AD30-C813F78AF80	Peter	Holm	A	+46 76 904 90 12	Valstra Hamngatan 16	122 33	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
7	robin.hedlund@hhb.com	0a182c3d4e5f66	746C1083-797D-4389-AD30-C813F78AF81	Robin	Hedlund	A	+46 77 905 12 34	Skappabron 7	124 55	Norrköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
8	daniel.elk@hhb.com	0a182c3d4e5f65	846C1083-797D-4389-AD30-C813F78AF82	Daniel	Elk	A	+46 78 906 34 56	Gålgatan 3	126 77	Luleå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
9	anna.svensson@gmail.com	0a182c3d4e5f66	946C1083-797D-4389-AD30-C813F78AF83	Anna	Svensson	C	+46 72 001 23 45	Drottninggatan 45	113 56	Göteborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
10	lisa.andersson@yahoo.com	0a2c3d4e5f667	AL6C1083-797D-4389-AD30-C813F78AF84	Lisa	Andersson	C	+46 73 002 34 56	Vasagatan 9	115 67	Uppsala	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
11	emma.karlsson@outlook.com	0a2d4e5f667	BL6C1083-797D-4389-AD30-C813F78AF85	Emma	Karlsson	C	+46 74 003 45 67	Ostra Skogsgatan 33	117 89	Örebro	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
12	henrik.stenberg@yahoo.com	0a2d4e5f667	CL6C1083-797D-4389-AD30-C813F78AF86	Henrik	Stenberg	C	+46 75 004 56 78	Lilla Nygatan 5	130 21	Falun	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
13	linda.bergström@outlook.com	0a2f6677890	DL6C1083-797D-4389-AD30-C813F78AF87	Linda	Bergström	C	+46 76 005 67 89	Ostra Hamngatan 18	131 32	Östern	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
14	johan.nylund@gmail.com	0a2f6677890	EL6C1083-797D-4389-AD30-C813F78AF88	Johan	Nylund	C	+46 77 006 78 90	Storgatan 12	132 43	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
15	sara.elman@yahoo.com	0a2f6677890	FL6C1083-797D-4389-AD30-C813F78AF89	Sara	Elman	C	+46 78 007 89 01	Kungsgatan 78	133 54	Gävle	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
16	maria.lind@outlook.com	0a2f6677890	GL6C1083-797D-4389-AD30-C813F78AF90	Maria	Lind	C	+46 79 008 90 12	Bergsgatan 5	134 65	Jönköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
17	oliver.nilsson@gmail.com	0a2f6677890	HL6C1083-797D-4389-AD30-C813F78AF91	Oliver	Nilsson	C	+46 70 009 12 34	Södra Vägen 8	135 76	Helsingborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
18	kristin.forsberg@yahoo.com	0a2f6677890	IL6C1083-797D-4389-AD30-C813F78AF92	Kristin	Forsberg	C	+46 71 010 23 45	Valstra Hamngatan 16	136 87	Kattholm	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
19	matias.holm@outlook.com	0a2f6677890	JL6C1083-797D-4389-AD30-C813F78AF93	Matias	Holm	C	+46 72 011 34 56	Skappabron 7	137 98	Norrköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
20	josefine.eriksson@gmail.com	0a2f6677890	KL6C1083-797D-4389-AD30-C813F78AF94	Josefine	Eriksson	C	+46 73 012 45 67	Gålgatan 3	138 09	Borås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
21	sebastian.wahlström@outlook.com	0a2f6677890	LL6C1083-797D-4389-AD30-C813F78AF95	Sebastian	Wahlström	C	+46 74 013 56 78	Drottninggatan 10	139 10	Hälsjö	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
22	therese.larsson@outlook.com	0a2f6677890	ML6C1083-797D-4389-AD30-C813F78AF96	Therese	Larsson	C	+46 75 014 67 89	Torggatan 22	140 21	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
23	patric.malmström@gmail.com	0a2f6677890	NL6C1083-797D-4389-AD30-C813F78AF97	Patric	Malmström	C	+46 76 015 78 90	Norra Skogsgatan 55	141 32	Skövde	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
24	hanna.lundqvist@yahoo.com	0a2f6677890	OL6C1083-797D-4389-AD30-C813F78AF98	Hanna	Lundqvist	C	+46 77 016 89 01	Ostra Skogsgatan 12	142 43	Tullstaden	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
25	viktor.bjork@outlook.com	0a2f6677890	PL6C1083-797D-4389-AD30-C813F78AF99	Viktor	Bjork	C	+46 78 017 90 12	Kungsgatan 34	143 54	Kristianstad	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
26	elin.fansson@gmail.com	0a2f6677890	QL6C1083-797D-4389-AD30-C813F78AF100	Elin	Fansson	C	+46 79 018 12 34	Lilla Hamngatan 5	144 65	Kalmar	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
27	alexander.wallin@yahoo.com	0a2f6677890	RL6C1083-797D-4389-AD30-C813F78AF101	Alexander	Wallin	C	+46 70 019 23 45	Ostra Hamngatan 22	145 76	Luleå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
28	nathalie.sandberg@outlook.com	0a2f6677890	SL6C1083-797D-4389-AD30-C813F78AF102	Nathalie	Sandberg	C	+46 71 020 34 56	Storgatan 30	146 87	Kattholm	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
29	gutten.holmgren@gmail.com	0a2f6677890	TL6C1083-797D-4389-AD30-C813F78AF103	Gutten	Holmgren	C	+46 72 021 45 67	Skappabron 10	147 98	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
30	solve.nilsson@yahoo.com	0a2f6677890	UL6C1083-797D-4389-AD30-C813F78AF104	Solve	Nilsson	C	+46 73 022 56 78	Vasagatan 20	148 09	Umeå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
31	james.martinsson@jcab.com	0A4E4A4F1350A6	4B9CCE4E-AD5E-47E3-ATE3-D8146A31D8	James	Martinsson	C	+46 75 482 35 50	Kronängan 1	191 56	Solentuna	Philp	0	ED9711F2EA3	2025-02-22 17:22:38	0	0	2025-02-21 17:22:38.860	2025-02-21 17:22:38.860	2025-08-21 17:22:38.860

Notice how your account has a verification token and an expiring date, that's because you created your account by using the *Register* procedure.

Results with incorrect email format:

Messages	
Msg 3903, Level 16, State 1, Procedure Register, Line 67 [Batch Start Line 27] The ROLLBACK TRANSACTION request has no corresponding BEGIN TRANSACTION.	
Msg 50000, Level 16, State 1, Procedure Register, Line 69 [Batch Start Line 27] Invalid e-mail address. You seem to not have followed the correct format, here is an example email: test@test.se	
Completion time: 2025-02-21T17:34:35.7928661+01:00	

Results with incorrect password format:

Messages	
Msg 3903, Level 16, State 1, Procedure Register, Line 67 [Batch Start Line 27] The ROLLBACK TRANSACTION request has no corresponding BEGIN TRANSACTION.	
Msg 50000, Level 16, State 1, Procedure Register, Line 69 [Batch Start Line 27] The password must have at least: - 8 Letters - 1 Uppercase letter - 1 Number - 1 Symbol	
Completion time: 2025-02-21T17:36:20.7647655+01:00	

Results if the inserted email exists:

The specified email address is already in use.

Verification

```
SELECT FirstName + ' ' + LastName AS FullName, -- Get your verification code
       VerificationToken,
       VerificationTokenExpiry
FROM Users.Users
WHERE Email = 'test@test.com' -- Enter your email

EXEC Verification
    @Email = 'test@test.com', -- Enter your email
    @VerificationToken = ''; -- Enter your verification code
```

Now that you've registered a new account, you will need to verify your account. Use the SELECT statement provided in the procedure before running the EXEC Verification code. Don't forget to replace the existing test email with the email you created your account with on both the SELECT statement and EXEC Verification code.

Result:

Results			
Messages			
	FullName	VerificationToken	VerificationTokenExpiry
1	James Martinsson	ED9711F2-EA30-4874-BDC2-95329D16B758	2025-02-22 17:22:38.860

Now copy the verification token and insert it to @VerificationToken.

```
SELECT FirstName + ' ' + LastName AS FullName, -- Get your verification code
       VerificationToken,
       VerificationTokenExpiry
FROM Users.Users
WHERE Email = 'james.martinsson@jcab.com' -- Enter your email

EXEC Verification
    @Email = 'james.martinsson2@jcab.com', -- Enter your email
    @VerificationToken = 'ED9711F2-EA30-4874-BDC2-95329D16B758'; -- Enter your verification code
```

Run the "EXEC Verification" code.

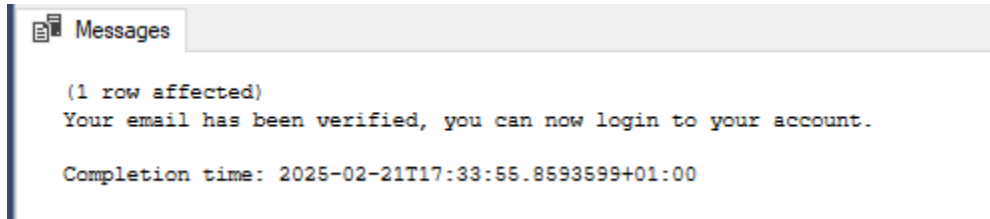
Result:

Messages	
Msg 50000, Level 16, State 1, Procedure Verification, Line 26 [Batch Start Line 46] Verification failed. Invalid verification code/email or the verification code has expired.	
Completion time: 2025-02-21T17:32:53.3525009+01:00	

What went wrong?

The answer to that is because we made a typo on the email. Notice how the email has a “2”?

Once we correct that, the result will be:



Now that the account is verified, IsVerified and IsActive will be changed to “1” and the VerificationToken and VerificationTokenExpiry columns will be emptied.

Results	Messages	UserId	Email	PasswordHash	Salt	FirstName	LastName	Role	PhoneNumber	Address	PostalCode	City	Country	IsVerified	VerificationToken	VerificationTokenExpiry	IsActive	IsLockedOut	CreatedAt	UpdatedAt	ValidTo
4		4	oskar.persson@hbb.com	0a180c304e5f63	456C1083-797D-4389-AD30-C813F78A8F7E	Oskar	Persson	A	+46 74 902 56 78	Bergsgatan 5	118 90	Linköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
5		5	mattias.fredriksson@hbb.com	0a180c304e5f65	546C1083-797D-4389-AD30-C813F78A8F7F	Mattias	Fredriksson	A	+46 75 903 78 90	Södra Vägen 8	120 11	Lund	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
6		6	peter.holm@hbb.com	0a180c304e5f66	66C1083-797D-4389-AD30-C813F78A8F80	Peter	Holm	A	+46 76 904 90 12	Västra Hamngatan 16	122 33	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
7		7	robin.hedlund@hbb.com	0a180c304e5f66	78C1083-797D-4389-AD30-C813F78A8F81	Robin	Hedlund	A	+46 77 905 12 34	Sköppelbron 7	124 55	Norrköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
8		8	daniel.el@hbb.com	0a180c304e5f65	88C1083-797D-4389-AD30-C813F78A8F82	Daniel	El	A	+46 78 906 34 56	Götgatan 3	126 77	Luleå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
9		9	anna.svensson@gmail.com	0a180c304e5f6	96C1083-797D-4389-AD30-C813F78A8F83	Anna	Svensson	C	+46 72 001 23 45	Drottninggatan 45	113 56	Göteborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
10		10	lisa.andersson@yahoo.com	0a180c304e5f67	AL6C1083-797D-4389-AD30-C813F78A8F84	Lisa	Andersson	C	+46 73 002 34 56	Vassagatan 9	115 67	Uppsala	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
11		11	emma.karlsson@outlook.com	0a180c304e5f67	BL6C1083-797D-4389-AD30-C813F78A8F85	Emma	Karlsson	C	+46 74 003 45 67	Östra Storgatan 33	117 89	Örebro	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
12		12	henrik.stenberg@hbb.com	0a180c304e5f67	CL6C1083-797D-4389-AD30-C813F78A8F86	Henrik	Stenberg	C	+46 75 004 56 78	Lilla Nygatan 5	130 21	Falun	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
13		13	linda.bergström@hbb.com	0a180c304e5f67	DL6C1083-797D-4389-AD30-C813F78A8F87	Linda	Bergström	C	+46 76 005 67 89	Östra Hamngatan 18	131 32	Östersund	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
14		14	johann.nyberg@gmail.com	0a180c304e5f67	EL6C1083-797D-4389-AD30-C813F78A8F88	Johann	Nyberg	C	+46 77 006 78 90	Storgatan 12	132 43	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
15		15	sara.elmström@yahoo.com	0a180c304e5f67	FL6C1083-797D-4389-AD30-C813F78A8F89	Sara	Elmström	C	+46 78 007 89 01	Kungsgatan 78	133 54	Gävle	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
16		16	maria.lind@hbb.com	0a180c304e5f67	GL6C1083-797D-4389-AD30-C813F78A8F90	Maria	Lind	C	+46 79 008 90 12	Bergsgatan 5	134 65	Jönköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
17		17	oliver.nilsson@gmail.com	0a180c304e5f67	HL6C1083-797D-4389-AD30-C813F78A8F91	Oliver	Nilsson	C	+46 80 009 12 34	Södra Vägen 8	135 76	Helsingborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
18		18	kristin.forsberg@yahoo.com	0a180c304e5f67	IL6C1083-797D-4389-AD30-C813F78A8F92	Kristin	Forsberg	C	+46 81 010 23 45	Västra Hamngatan 16	136 87	Karlstad	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
19		19	markus.holm@outlook.com	0a180c304e5f67	JL6C1083-797D-4389-AD30-C813F78A8F93	Markus	Holm	C	+46 82 011 34 56	Sköppelbron 7	137 98	Nyköping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
20		20	josefine.eriksson@gmail.com	0a180c304e5f67	KL6C1083-797D-4389-AD30-C813F78A8F94	Josefine	Eriksson	C	+46 83 012 45 67	Götgatan 3	138 09	Borås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
21		21	sebastian.wahlström@yahoo.com	0a180c304e5f67	LL6C1083-797D-4389-AD30-C813F78A8F95	Sebastian	Wahlström	C	+46 84 013 56 78	Drottningtorget 10	139 10	Halmstad	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
22		22	therese.larsson@outlook.com	0a180c304e5f67	ML6C1083-797D-4389-AD30-C813F78A8F96	Therese	Larsson	C	+46 85 014 67 89	Torggatan 22	140 21	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
23		23	patric.malmström@gmail.com	0a180c304e5f67	NL6C1083-797D-4389-AD30-C813F78A8F97	Patric	Malmström	C	+46 86 015 78 90	Norra Storgatan 55	141 32	Skövde	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
24		24	hanna.lundqvist@yahoo.com	0a180c304e5f67	OL6C1083-797D-4389-AD30-C813F78A8F98	Hanna	Lundqvist	C	+46 87 016 89 01	Östra Storgatan 12	142 43	Trollhättan	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
25		25	victor.björk@outlook.com	0a180c304e5f67	PL6C1083-797D-4389-AD30-C813F78A8F99	Victor	Björk	C	+46 88 017 90 12	Kungsgatan 34	143 54	Kristianstad	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
26		26	elin.franzén@gmail.com	0a180c304e5f67	QL6C1083-797D-4389-AD30-C813F78A8F100	Elin	Franzén	C	+46 89 018 12 34	Lilla Bergsgatan 5	144 65	Kalmar	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
27		27	alexander.wallin@yahoo.com	0a180c304e5f67	RL6C1083-797D-4389-AD30-C813F78A8F101	Alexander	Wallin	C	+46 90 019 23 45	Östra Hamngatan 22	145 76	Luleå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
28		28	nathalie.sandberg@outlook.com	0a180c304e5f67	SL6C1083-797D-4389-AD30-C813F78A8F102	Nathalie	Sandberg	C	+46 91 020 34 56	Storgatan 90	146 87	Karlskrona	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
29		29	gustav.holmgren@gmail.com	0a180c304e5f67	TL6C1083-797D-4389-AD30-C813F78A8F103	Gustav	Holmgren	C	+46 92 021 45 67	Sköppelbron 10	147 98	Västerås	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
30		30	solve.nilsson@yahoo.com	0a180c304e5f67	UL6C1083-797D-4389-AD30-C813F78A8F104	Solve	Nilsson	C	+46 93 022 56 78	Vassagatan 20	148 09	Umeå	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:27.067	2025-02-21 17:22:27.067	2025-08-21 17:22:27.067
31		31	james.martinson@cab.com	0a180c304e5f67	4B2C2CEADEE47EBATE3D8146A31D08	James	Martinson	C	+46 95 452 05 50	Kronvägen 1	191 56	Sollentuna	Philippine	1	NULL	NULL	1	0	2025-02-21 17:22:38.860	2025-02-21 17:22:38.860	2025-08-21 17:22:38.860

Results if email or verification code is incorrect and/or the verification code has expired:

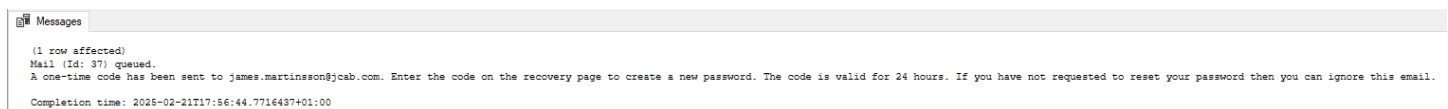
Verification failed. Invalid email or verification code and/or the verification code has expired.

ForgottenPassword

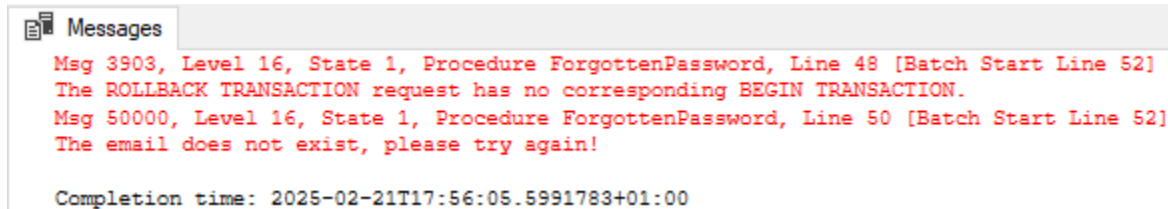
```
EXEC ForgottenPassword -- Get your verification code / reset code to reset your password
@Email = 'test@test.com' -- Enter your email
```

This code allows the user to receive a new verification code and reset their password via the “SetForgottenPassword” procedure.

Result:



Result if the email does not exist:



SetForgottenPassword

```
SELECT FirstName + ' ' + LastName AS FullName, -- Get your verification code
       VerificationToken,
       VerificationTokenExpiry
FROM Users.Users
WHERE Email = 'test@test.com' -- Enter your email

EXEC SetForgottenPassword
    @Email = 'test@test.com', -- Enter your email
    @NewPassword = 'Testttt1!', -- Enter your new password
    @VerificationToken = ''; -- Enter your verification code
```

After requesting a new verification code from the “ForgottenPassword” procedure, it’s time to use this procedure and reset your own password. Change the “test” from each row with your own credentials. Use the SELECT statement first to get your new verification code and then insert it in the “EXEC SetForgottenPassword” command.

Results			
Messages			
	FullName	VerificationToken	VerificationTokenExpiry
1	James Martinsson	10E20BF2-F607-4FC6-B8D8-CF8B5E73D5F8	2025-02-22 17:56:44.677

Notice how a completely different verification code is generated from when you first registered your account? That’s because it’s made to generate a new verification code every time. When a new password is set, then those two columns will once again be emptied.

```
SELECT FirstName + ' ' + LastName AS FullName, -- Get your verification code
       VerificationToken,
       VerificationTokenExpiry
FROM Users.Users
WHERE Email = 'james.martinsson@jcab.com' -- Enter your email

EXEC SetForgottenPassword
    @Email = 'james.martinsson@jcab.com', -- Enter your email
    @NewPassword = 'Hejsan123!', -- Enter your new password
    @VerificationToken = '10E20BF2-F607-4FC6-B8D8-CF8B5E73D5F8'; -- Enter your verification code
```

It’s time to run the “EXEC SetForgottenPassword” command.

Result:

Messages	
Msg 50000, Level 16, State 1, Procedure SetForgottenPassword, Line 60 [Batch Start Line 63] Your new password cannot be the same as your old password, please try again.	
Completion time: 2025-02-21T18:11:07.2127174+01:00	

Entering the same password as your old one is not allowed, you’ll have to insert a completely new password.

Correct Result:

```
Messages

(1 row affected)
The verification is successful, a new password has been set.

Completion time: 2025-02-21T18:12:01.0429754+01:00
```

Result if incorrect email or verification code and/or the verification code has expired:

You cannot change the password. Invalid email or verification code and/or the verification code has expired.

Login

EXEC Login

```
@Email = 'test@test.com', -- Enter your email
@Password = 'Testttt1!', -- Enter your password
@IPAddress = '29.85.156.124'; -- Enter your IP Address (IPv4 - X.X.X.X)
```

This is the last procedure and when you've registered and verified your account, you'll be able to log in with this procedure. Replace the "test" with your own credentials.

But what about @IPAddress? Although it would be possible to obtain a user's IP Address automatically, we decided to let the user for this project to insert an IP Address of their choosing (The idea of obtaining a user's IP Address automatically is for it to be external and not through SQL for security purposes.), it doesn't need to be a real IP Address.

EXEC Login

```
@Email = 'james.martinsson@jcab.com', -- Enter your email
@Password = 'Hejsan1234!', -- Enter your password
@IPAddress = '78.90.256.345'; -- Enter your IP Address (IPv4 - X.X.X.X)
```

Result:

```
(1 row affected)
Login Successful

Completion time: 2025-02-21T20:35:57.0619136+01:00
```

Result if incorrect password is entered:

```
(1 row affected)
Msg 50000, Level 16, State 1, Procedure Login, Line 97 [Batch Start Line 70]
Wrong password.

Completion time: 2025-02-21T20:36:18.4418413+01:00
```

```
Messages
(1 row affected)

(1 row affected)
Msg 50000, Level 16, State 1, Procedure Login, Line 97 [Batch Start Line 70]
Your account has been locked due to too many login attempts. To unlock your account, please contact our customer service.

Completion time: 2025-02-21T20:39:13.4826075+01:00
```

Results	Messages																								
4	5	UserID	Email	PersonID/Hash	Salt	FirstName	LastName	Phone	Role	Address	PostCode	City	Country	IsVerified	VerificationToken	VerificationTokenExpiry	IsActive	IsLockedOut	CreatedAt	UpdatedAt	ValidTo				
4	5	0	akron.persson@bhhb.com	0xA182C304E5F63	456C1063-7970-4389-AD0C-C8137F8AF7F6	AKRON	Persson	A	+46 74 902 56 78	Bergaplan 5	118 90	Ljungkoping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
5	6	0	nutias.fredriksson@bhhb.com	0xA182C304E5F66	594C1063-7970-4389-AD0C-C8137F8AF7F6	AKRON	Fredriksson	A	+46 70 903 78 90	Sida Vagen 8	120 55	Ljungkoping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
6	6	0	perter.holm@bhhb.com	0xA182C304E5F66	796C1063-7970-4389-AD0C-C8137F8AF7F6	Perter	Holm	A	+46 78 904 12 34	Vistaan Hattengatan 16	122 33	Sundsvall	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
7	6	0	robin.hedlund@bhhb.com	0xA182C304E5F66	690C1063-7970-4389-AD0C-C8137F8AF7F6	Robin	Hedlund	A	+46 75 905 12 34	Sieppan 7	124 55	Nordkoping	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
8	9	0	anna.svensson@gmail.com	0xA182C304E5F65	060C1063-7970-4389-AD0C-C8137F8AF7F6	Anna	Svensson	A	+46 78 904 12 34	Gulvagn 3	124 55	Gävleborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
9	9	0	anna.svensson@gmail.com	0xA182C304E5F65	96BC1063-7970-4389-AD0C-C8137F8AF7F6	Anna	Svensson	C	+46 70 001 23 45	Drottninggatan 45	115 66	Gävleborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
10	10	10	lisa.andersson@bhhb.com	0xB2C304E5F667	A16C1063-7970-4389-AD0C-C8137F8AF7F6	Lisa	Andersson	A	+46 73 002 34 56	Västgatan 9	113 67	Uppsala	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
11	11	11	emilia.karlsson@bhhb.com	0xC304E5F6G7H8	BL6C1063-7970-4389-AD0C-C8137F8AF7F6	Emilia	Karlsson	C	+46 74 003 45 67	Östra Storgatan 33	117 89	Örebro	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
12	12	12	henrik.stenberg@bhhb.com	0xC304E5F6G7H8	CL6C1063-7970-4389-AD0C-C8137F8AF7F6	Henrik	Stenberg	C	+46 75 004 56 78	Lilla Nygatan 5	130 21	Falun	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
13	13	13	linda.bergström@bhhb.com	0xC304E5F6G7H8	DL6C1063-7970-4389-AD0C-C8137F8AF7F6	Linda	Bergström	C	+46 76 005 67 89	Östra Hattengatan 18	131 32	Gävleborg	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
14	14	14	joakim.holm@bhhb.com	0xC304E5F6G7H8	EL6C1063-7970-4389-AD0C-C8137F8AF7F6	Joakim	Holm	C	+46 77 006 78 90	Storgatan 12	132 43	Örebro	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				
15	15	15	sara.emman@bhhb.com	0xC7H8I9JKL0	FL6C1063-7970-4389-AD0C-C8137F8AF7F6	Sara	Emman	C	+46 78 007 89 01	Kungälvstegen 78	133 54	Ostergötland	Sweden	0	NULL	NULL	0	0	2025-02-21 17:22:67	2025-02-21 17:22:67	2025-08-21 17:22:67				

Your account is locked, please contact our customer service.

Your account has not been verified, please verify your account via email.

Your account is inactive.

```
SELECT * -- View to see all users recent login attempts
FROM UserLoginActivity;
```

```
SELECT * -- View to see all users successful and failed login attempts
FROM UserLoginAttempts;
```

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Result:

Results Messages					
	Email	FullName	LastSuccessfulLogin	LastFailedLogin	
19	makua.holm@outlook.com	Makua Holm	NULL	2025-02-14 03:15:00.000	
20	josefine.eriksson@gmail.com	Josefine Eriksson	2025-02-15 04:05:00.000	NULL	
21	sebastian.wahlstrom@yahoo.com	Sebastian Wahlström	NULL	NULL	
22	therese.larson@outlook.com	Therese Larsson	NULL	NULL	
23	petrik.malmstrom@gmail.com	Patrik Malmström	NULL	NULL	
24	hanna.lundqvist@yahoo.com	Hanna Lundqvist	NULL	NULL	
25	victor.bjork@outlook.com	Victor Björk	NULL	NULL	
26	elin.franzson@gmail.com	Elin Franzson	NULL	NULL	
27	alexander.wallin@yahoo.com	Alexander Wallin	NULL	NULL	
28	nathalie.sandberg@outlook.com	Nathalie Sandberg	NULL	NULL	
29	gustav.holmgren@gmail.com	Gustav Holmgren	NULL	NULL	
30	solve.nilsson@yahoo.com	Solve Nilsson	NULL	NULL	
31	james.martinson@jab.com	Test Testsson	2025-02-21 20:55:28.910	2025-02-21 20:55:39.150	

	Email	IPAddress	AttemptedAt	SuccessfulAttempts	FailedAttempts	TotalAttempts	AVGSuccessfulAttempts
1	james.martinson@jab.com	29.85.156.124	2025-02-21 20:55:28.910	1	0	1	1
2	james.martinson@jab.com	29.85.156.124	2025-02-21 20:55:35.010	1	1	2	0.5
3	james.martinson@jab.com	29.85.156.124	2025-02-21 20:55:36.760	1	2	3	0.33
4	james.martinson@jab.com	29.85.156.124	2025-02-21 20:55:37.620	1	3	4	0.25
5	james.martinson@jab.com	29.85.156.124	2025-02-21 20:55:39.150	1	4	5	0.2
6	oliver.nilsson@gmail.com	79.85.156.124	2025-02-12 01:00:00.000	0	1	1	0
7	oliver.nilsson@gmail.com	79.85.156.124	2025-02-12 01:10:00.000	0	2	2	0
8	oliver.nilsson@gmail.com	79.85.156.124	2025-02-12 01:15:00.000	1	2	3	0.33
9	kristin.forsberg@yahoo.com	79.85.156.127	2025-02-13 02:05:00.000	1	0	1	1
10	kristin.forsberg@yahoo.com	79.85.156.127	2025-02-13 02:10:00.000	2	0	2	1
11	makua.holm@outlook.com	79.85.156.129	2025-02-14 03:05:00.000	0	1	1	0
12	makua.holm@outlook.com	79.85.156.129	2025-02-14 03:10:00.000	0	2	2	0
13	makua.holm@outlook.com	79.85.156.129	2025-02-14 03:15:00.000	0	3	3	0

Delete old logs

```
DELETE FROM Users.LoginLogs WHERE AttemptedAt < DATEADD(MONTH, -1, GETDATE());
-- This can be automated using "SQL Server Agent" so that it executes everyday or when you want it to, I'll add this code in case you don't want to do those extra steps and setup the "SQL Server Agent". This gets explained more in-depth via the documentation.
```

This code is added in here just for the purpose of allowing a user to delete old logs that's older than a month (It's for the educator of this course, so that he doesn't need to set up an SQL Server Agent Job to save him some time). If it were to be in a real project, then it would be automated using SQL Server Agent.

But if you want to automate it then here is a quick guide to how you can do it:

- 1. Enable SQL Server Agent**
 - Go to the *"Object Explorer"* and expand *"SQL Server Agent"*.
 - If it's disabled, then right-click *SQL Server Agent* and select *"start"*.
- 2. Create an SQL Agent Job**
 - Right-click *SQL Server Agent* hover *New* > click *Job*.
 - In the general tab: give the job a name, optionally add a description
- 3. Add a Job Step**
 - Go to the Steps tab and click *New*.
 - In the New Job Step window: Give the step a Step Name,
 - Type: *Transact_SQL (T-SQL)*,
 - Select *Hederlige Harrys Bilar* database
 - Enter this query: `DELETE FROM Users.LoginLogs WHERE AttemptedAt < DATEADD(MONTH, -1, GETDATE());`
 - Click *OK*.
- 4. Schedule the Job**
 - Go to the *Schedules* tab and click *New*.
 - Give the schedule a name.
 - Set the frequency:
 - Occurs: *Monthly*,
 - Rekurs every: *1 month*,
 - Time: Choose a time when the database is the least busy.
 - Click *OK*.

Once you've saved the job, you're done, and it'll remove logs that are older than 1 month from Users.LoginLogs.

This concludes the documentation. We appreciate your time and hope this project meets your expectations. If you have any questions or require further assistance, please feel free to reach out.