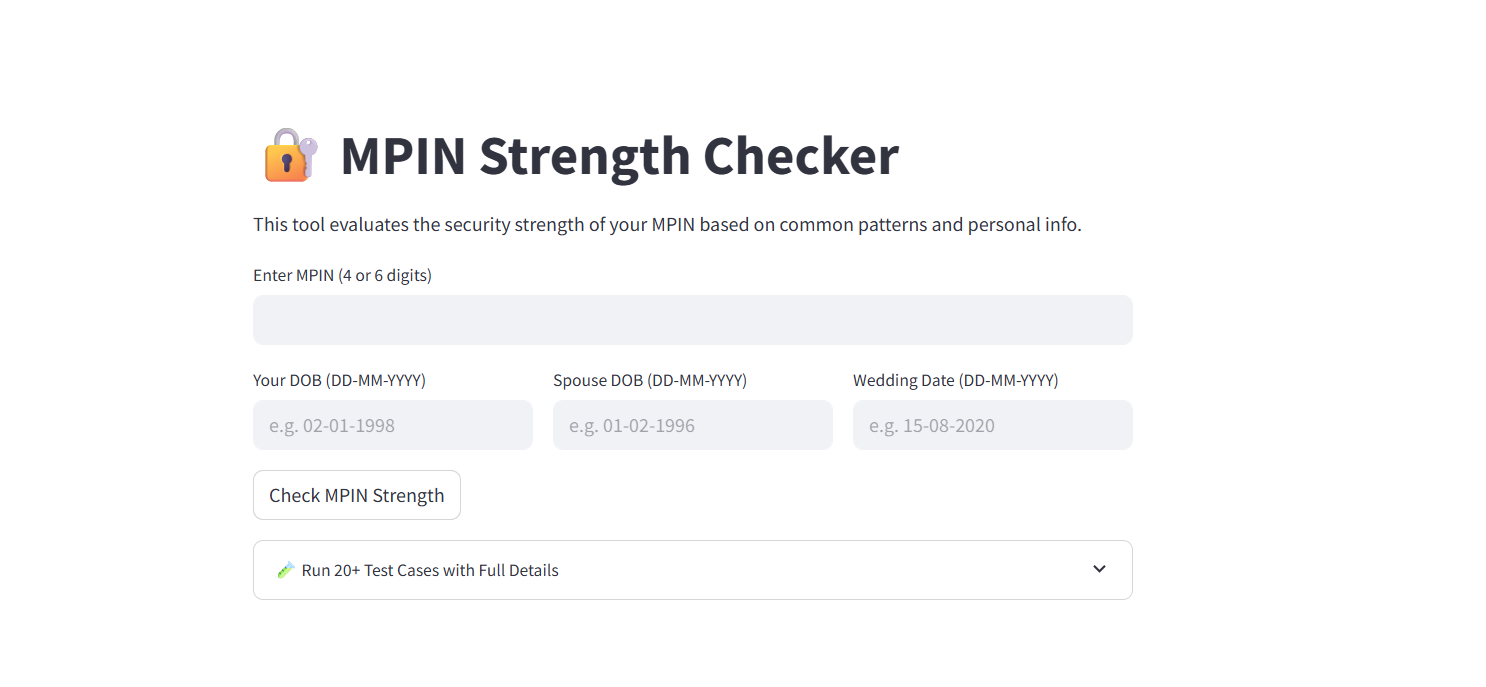
**🔐 MPIN Strength Checker**

**Github Repo -  https://github.com/Archit-1233/MPIN-Strength-Checker**

A smart tool to analyze the strength of 4-digit and 6-digit MPINs used in mobile banking.  
This tool detects whether an MPIN is **commonly used** or **derived from user demographics** such as:

* Date of Birth (DOB)
* Spouse's DOB
* Wedding Anniversary

[](https://private-user-images.githubusercontent.com/116543925/464190701-81a59e8f-ccf9-4f2e-8da2-a09f1e87c993.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MTkwNzAxLTgxYTU5ZThmLWNjZjktNGYyZS04ZGEyLWEwOWYxZTg3Yzk5My5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT02YzJjMjFmMmIwNzc2NDZlNzU0ZTJjMzE5OGQ5MWUxMmQ1YmM3NDNmMDMxNGJkMWI0ZTUxMTMzMzQ5NjdiZWYxJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.lyTuo47nVOHjLpS1sJcpF8VosPVdX0Cl9_gwm8iZke8)

**🌐 Live Demo**

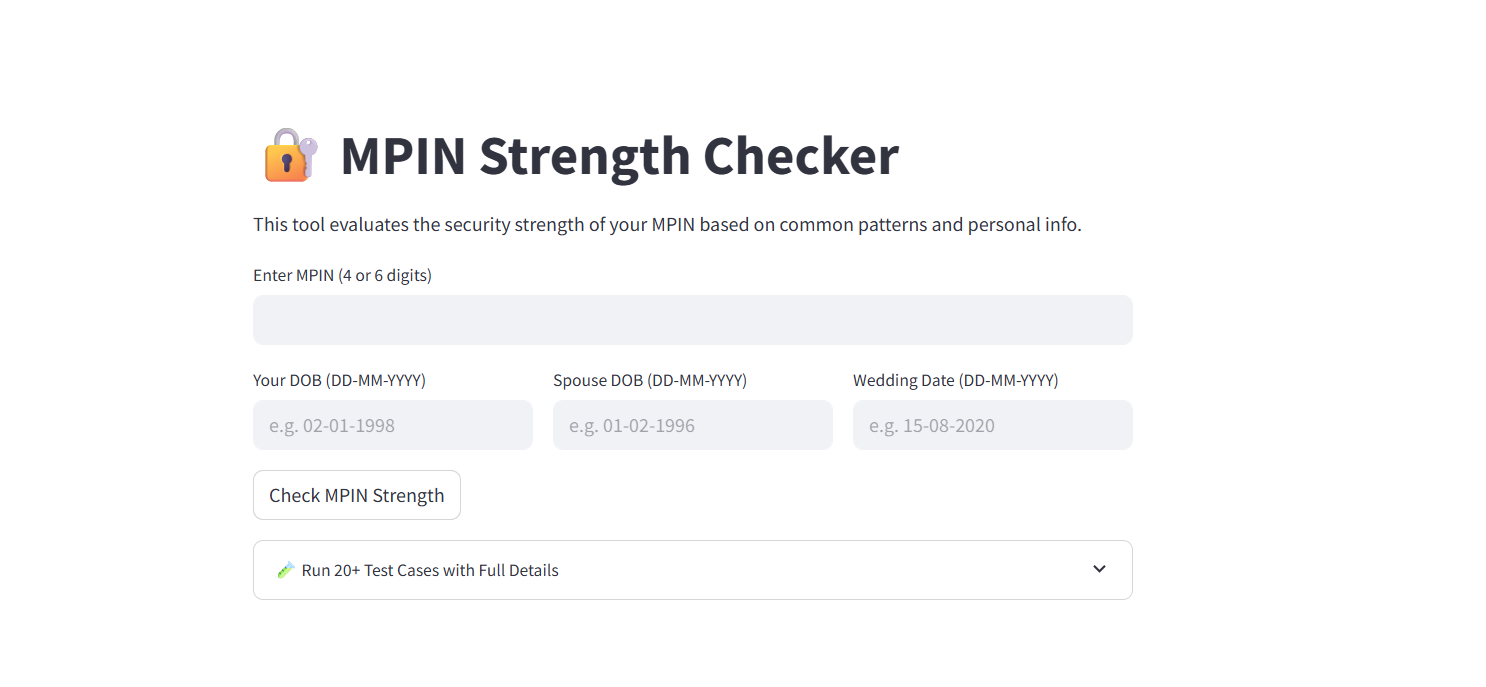
Click below to try the MPIN Strength Checker (no setup required): To simplify usage and improve evaluation, I have deployed the MPIN Strength Checker as a web application using Streamlit Cloud Please have a look ..... 👉 <https://mpin-strength-checker-j8devgw4hu4krad6nyverz.streamlit.app/>

✅ Enter MPIN and optional DOBs/Anniversary  
✅ Get real-time feedback on strength & reasons  
✅ View 20+ test cases in a friendly UI

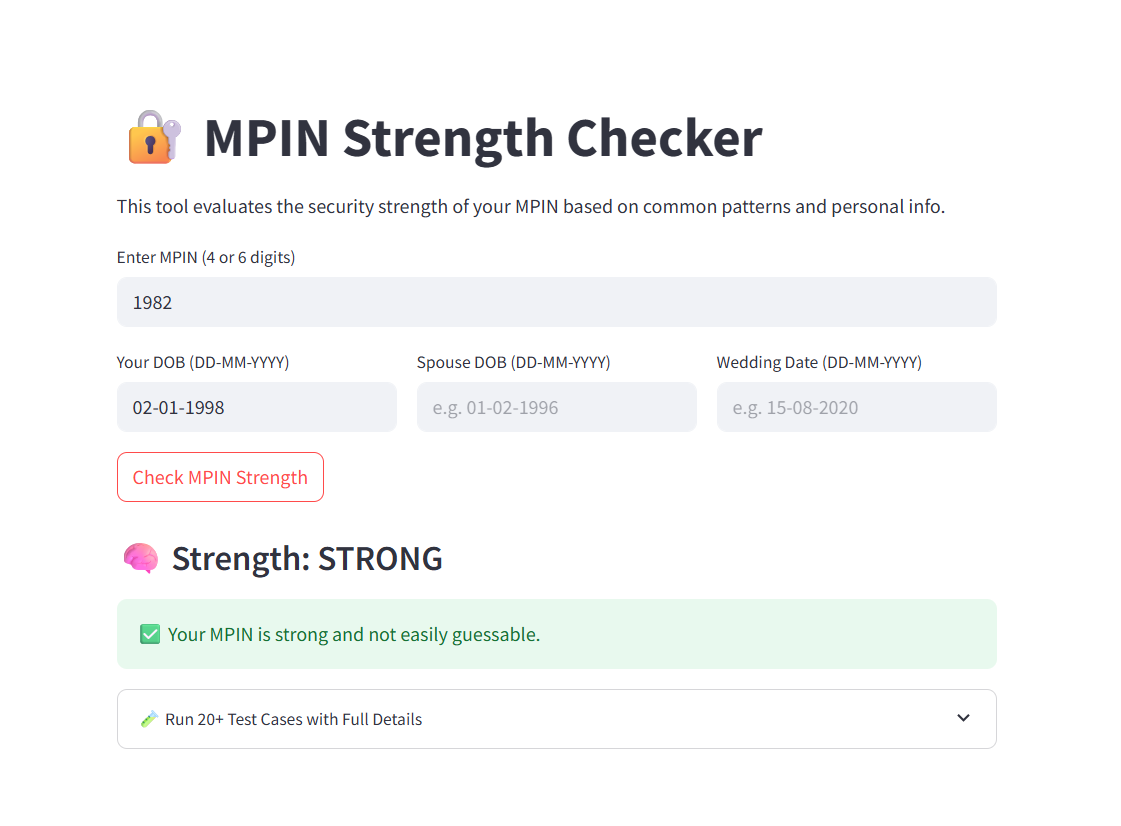
Developed as a part of a Data Science technical assessment for **OneBanc**.

**🖼️ App Preview**

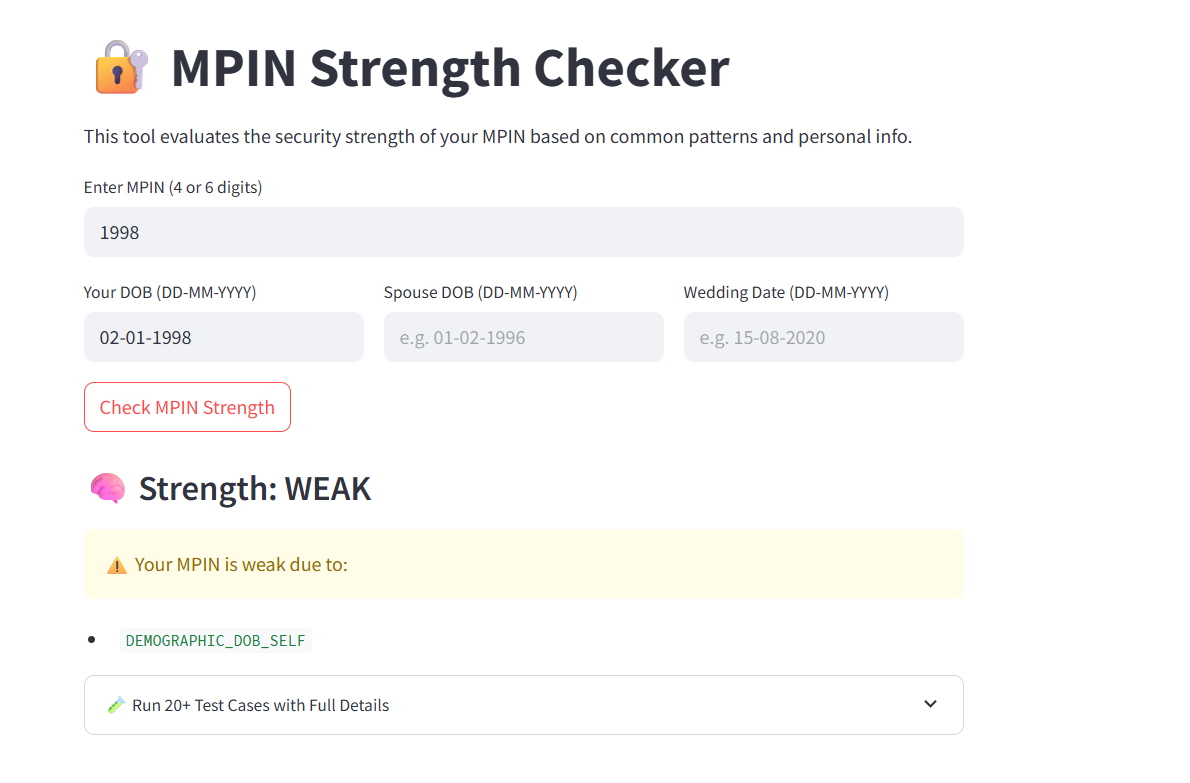
**🔹 Input Section**

[](https://private-user-images.githubusercontent.com/116543925/464190701-81a59e8f-ccf9-4f2e-8da2-a09f1e87c993.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MTkwNzAxLTgxYTU5ZThmLWNjZjktNGYyZS04ZGEyLWEwOWYxZTg3Yzk5My5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT02YzJjMjFmMmIwNzc2NDZlNzU0ZTJjMzE5OGQ5MWUxMmQ1YmM3NDNmMDMxNGJkMWI0ZTUxMTMzMzQ5NjdiZWYxJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.lyTuo47nVOHjLpS1sJcpF8VosPVdX0Cl9_gwm8iZke8)

**Output (In case of strong MPIN Password)**

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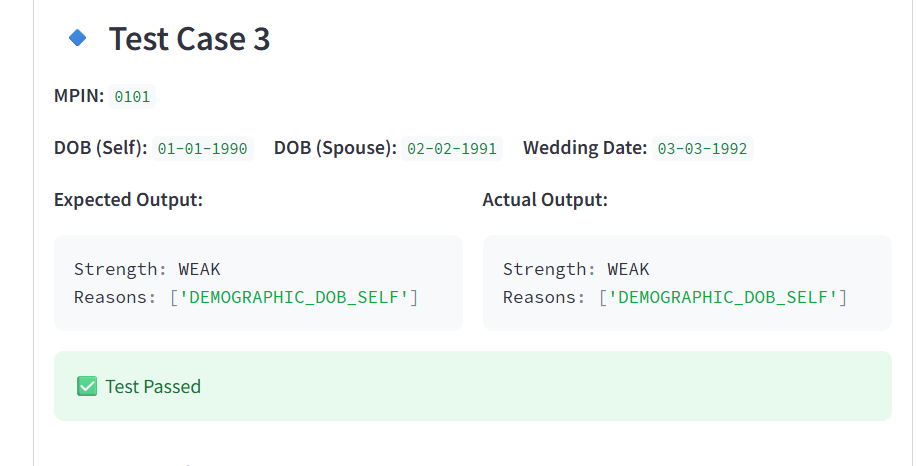
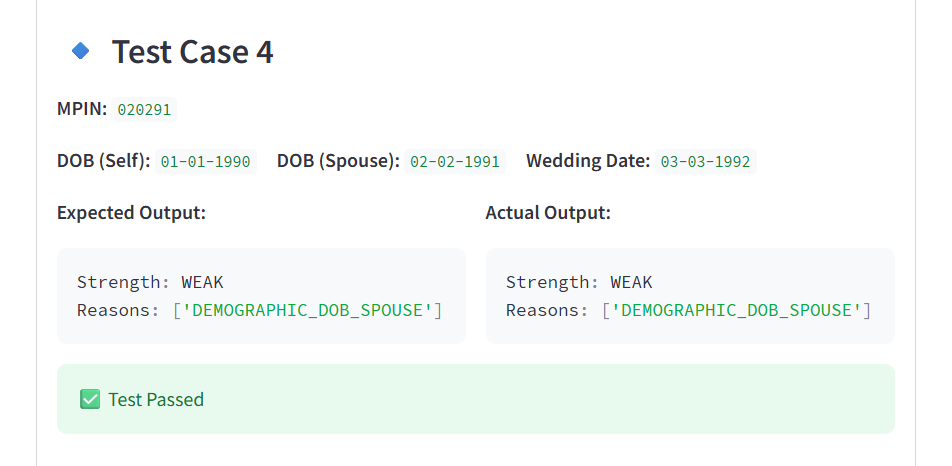
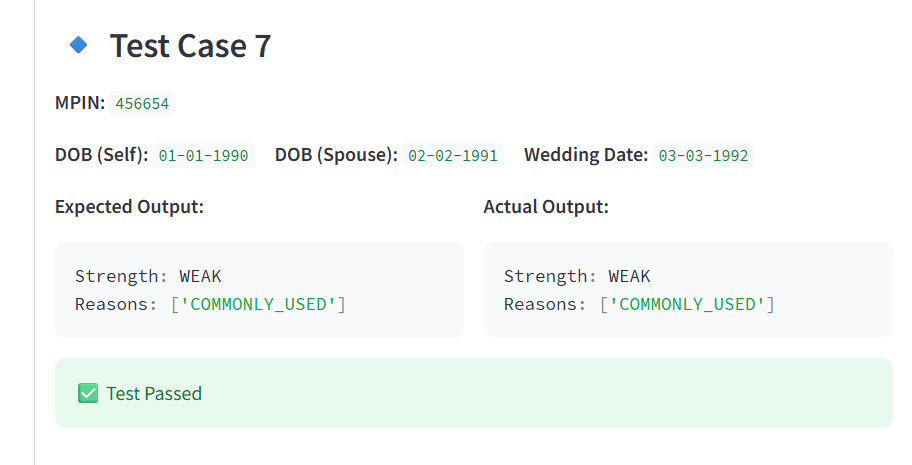
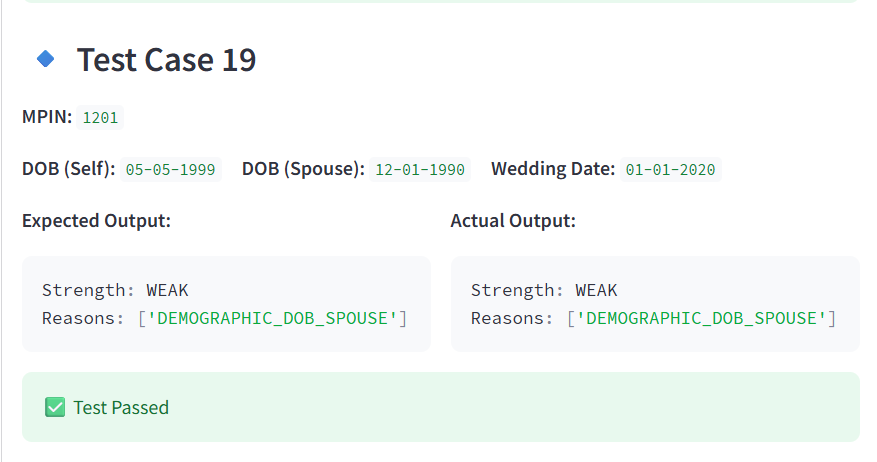
**Output (In case of weak MPIN Password)**

[](https://private-user-images.githubusercontent.com/116543925/464201463-a4646add-6748-4f89-862b-ff22000204b4.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAxNDYzLWE0NjQ2YWRkLTY3NDgtNGY4OS04NjJiLWZmMjIwMDAyMDRiNC5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT1iMTU2ZjRkZTNlYjMyMTU1MzEwOTViOTgxODQ4MzdkOGIyMzM4MzllYzM3MzA5N2Q5YWQxM2NlMDQ3ODI5ZDQ4JlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.N88M8aQji4wfeU_FCk0RueTWh_wW-qqRTC7zli2UegQ)

**🧪 Test Case Coverage**

The app includes a wide variety of 20+ test cases: Covers all edge cases: common pins, birthday patterns, mixed formats Clearly shows Expected vs Actual Visually displays: 🔢 Input MPIN 🎂 Demographic values ✅/❌ Test result Reason(s) if weak

**🔹 Test Case Results ( Some of the Screenshots .....)**

[](https://private-user-images.githubusercontent.com/116543925/464201684-44d9cd62-4eee-4f8c-8901-5a5f0beab407.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAxNjg0LTQ0ZDljZDYyLTRlZWUtNGY4Yy04OTAxLTVhNWYwYmVhYjQwNy5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT1mN2NiMDlkODJkMTU5MzhmNTllMzA2ZWRjZGJjMGU3Yjc1ZDM4MjIzNWMyNTQ3NjQxZmEyOGM1MTBkZGIxYTA2JlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.GMPPrBEnJEPshFv_vtgyI9a4pm0MTT1ONf0RY4LpuFE) [](https://private-user-images.githubusercontent.com/116543925/464201824-525a6d21-ad49-4a38-89b3-0f875dcb1476.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAxODI0LTUyNWE2ZDIxLWFkNDktNGEzOC04OWIzLTBmODc1ZGNiMTQ3Ni5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT0zOWRlZTk0NDQ0Yzk1MjM5MmQwOTUyYzcyOGM1ZjcxNjBmMWE4YmIxNWM1YTg3ODJlZDg4MWE3NjE3ZGIwNmYxJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.hIVwWY8LNKS1f6skYOCnmxJa405eQtwFc-vr3MBKmqQ) [](https://private-user-images.githubusercontent.com/116543925/464201949-7eee9c78-deb8-4790-b6eb-6de8bd801ab9.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAxOTQ5LTdlZWU5Yzc4LWRlYjgtNDc5MC1iNmViLTZkZThiZDgwMWFiOS5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT04ODA5YzNkOWI3MWMzNTMwYmJlNTQxZGEwNGY0YzA4OWJkY2Q5ODgxNWY4YTEwNmM0MzVhMGM2YTgzODRlNDQzJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.M1Skwtkzx70nZaPkgzSOkqs0nnOxC0B9gGvHJPslebA) [](https://private-user-images.githubusercontent.com/116543925/464202065-f874dcc2-a3f4-4484-8e07-08895475deae.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAyMDY1LWY4NzRkY2MyLWEzZjQtNDQ4NC04ZTA3LTA4ODk1NDc1ZGVhZS5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT0xNTQ5MzUwZWQ5NmVjMDQyZDY2YmRkZmU4OGJiYzQwZDc4ZThlNzc3MGMzZmEzYmQ5ZjcyNzk0ZGFhMDA1YjhmJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.cPz1I2QCcwDV-SMDRYA5pMg-7zPQZBGZoBxzVFxqFMA) [](https://private-user-images.githubusercontent.com/116543925/464202179-7b4c852d-4b3a-4228-991a-fe1ee471d13b.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAyMTc5LTdiNGM4NTJkLTRiM2EtNDIyOC05OTFhLWZlMWVlNDcxZDEzYi5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT1kZGEwZjViZmJkMDQyOTgyNzdjYjAxNTlmNGIxNWZlOGUzY2U3YzY5Njg3ZTg2MjhmMzk5MGQ1NzAzMDJiMDhjJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.QqVdtA2oj_5Pyb-DBhSBmrEETQrZDg9TGqsphRY1woI) [](https://private-user-images.githubusercontent.com/116543925/464202308-79dc69e7-905b-4b8b-a9e9-df84a555b631.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2MiwicGF0aCI6Ii8xMTY1NDM5MjUvNDY0MjAyMzA4LTc5ZGM2OWU3LTkwNWItNGI4Yi1hOWU5LWRmODRhNTU1YjYzMS5wbmc_WC1BbXotQWxnb3JpdGhtPUFXUzQtSE1BQy1TSEEyNTYmWC1BbXotQ3JlZGVudGlhbD1BS0lBVkNPRFlMU0E1M1BRSzRaQSUyRjIwMjUwNzA5JTJGdXMtZWFzdC0xJTJGczMlMkZhd3M0X3JlcXVlc3QmWC1BbXotRGF0ZT0yMDI1MDcwOVQxNTU5MjJaJlgtQW16LUV4cGlyZXM9MzAwJlgtQW16LVNpZ25hdHVyZT1jMmEyYmE5MTc3NWRjNjBiZGIyYTAwMTQ2OTE3ZGIxMGM3ZGFmMTkxYmY3MmM2YjQwNGIwNmJhNzA0NTQ2ZDFjJlgtQW16LVNpZ25lZEhlYWRlcnM9aG9zdCJ9.EfWB-1LtJLleN8VHuzvybWnkX9FRZEriov8D0i3JUx8) [](https://private-user-images.githubusercontent.com/116543925/464202487-29d0b55a-b735-496e-a844-9ce4c4ab7d90.png?jwt=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJnaXRodWIuY29tIiwiYXVkIjoicmF3LmdpdGh1YnVzZXJjb250ZW50LmNvbSIsImtleSI6ImtleTUiLCJleHAiOjE3NTIwNzcwNjIsIm5iZiI6MTc1MjA3Njc2Miw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**🚀 Features**

* ✅ Supports **4-digit** and **6-digit** MPINs
* ✅ Detects weak MPINs from:
  + Repeating/sequential patterns (e.g., 0000, 1234, 654321)
  + Demographic data (0201 from 02-01-1998)
* ✅ Classifies MPIN as **WEAK** or **STRONG**
* ✅ Gives clear **reason labels** if MPIN is weak:
  + COMMONLY\_USED
  + DEMOGRAPHIC\_DOB\_SELF
  + DEMOGRAPHIC\_DOB\_SPOUSE
  + DEMOGRAPHIC\_ANNIVERSARY
* ✅ Includes 20+ test cases
* ✅ Clean and intuitive **Streamlit UI**

**📁 Folder Structure**

MPIN-Strength-Checker/ │ ├── mpin\_app.py # 🔘 Streamlit frontend ├── mpin\_logic.py # 🧠 Core logic ├── test\_cases.py # 🧪 20+ test cases ├── requirements.txt # 📦 Python dependencies ├── screenshots/ # 📸 App UI images └── README.md # 📘 Project documentation