**AI-Powered Mortgage Advisor and Underwriting Agent**

**Solution Overview**

This accelerator provides applicant-focused, Conversational AI services to educate applicants on mortgage-related topics, provides personalized advisory services such as loan options, loan eligibility, pre-approved amount (with or without FICA score), monthly payment estimations. It also advises applicants on required documentation and proof of funds to prepare for mortgage application. Applicants can use information to determine purchase price, loan terms, downpayment amount, etc.

Once the properties are under contract and mortgage applications are submitted and saved to Azure with all required information such as income, liability, FICA Score, employment history, downpayment amount, bank statements, additional AI services can be applied to aid the bank on underwriting process that helps reduce manual effort, reduce risks, improve accuracy, and accelerate loan decision making processes.

**Key Features:**

**1. Conversational AI for Mortgage Education Loan Assistance**

Educate applicants on mortgage options, processes, and terminology. Provide personalized interest rates and loan suggestions based on user data. Helps applicants estimate loan eligibility based on income, liabilities, and credit scores.

**2. AI-Powered Document Intake & Verification**

Perform document scanning, data extraction, and identity verification. Azure Doc Intelligence (or the newly announced content understanding services) for Identity Documents, US Pay stubs, US Bank statements.

**3. Loan Application Submission**

Submit loan application with necessary information and the data is saved in Azure (Azure Cosmos DB and Blob Storage).

**3. AI-Based Underwriting & Risk Assessment**

Assess borrower data and predict risk using AI models (TBD).

**Solution Architecture**

1. Applicant Engagement & Education (Pre-Application)

Users interact with Copilot Studio Chatbot to: Learn about mortgage options and terms (fixed-rate, variable-rate, etc.).

Compare interest rates (integrating with real-time rate APIs).

Estimate eligible loan amount based on income, credit score, and debt-to-income ratio using Azure OpenAI for calculations and advice. Narrow down realistic house price ranges based on estimated loan amounts.

**2. Document Intake & Verification**

Applicants upload documents (income proof, tax returns, IDs such as passport or driver license), which are processed using:

Azure AI Document Intelligence for OCR and data extraction. Possibly leveraging the new services ‘Understand content services’ (Preview), presented

Azure Cognitive Services (Face API) for identity verification at MCAPS Tech Connect Feb 11, 2025 (by Stephen Kaufman, Cenyu Zhang, et all)

**3 Loan Application Submission**

**4. Underwriting & Risk Assessment**

AI model (Model TBD) evaluates creditworthiness and risk. Azure OpenAI provides additional insights into submitted data and documents, flagging risky applications for manual review.

**Solution Architecture Components**

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| **Component** | **Technology/Service** |
| Conversational AI | Microsoft Copilot Studio |
| Workflow automation and services integration | Copilot Studio and Power Automate |
| Interest Rate Comparisons | Integrate with vendor API real time or websites |
| Loan Estimation and Guidance | Secure .NET C# Web APIs (custom development) that are invoked from Power Automate flows. |
| Document Intake and Verification | Secure .NET C# Web APIs (custom development). Azure Document Intelligence, prebuilt models: identity docs, pay stubs, bank statements |
| Identity / Document Verification | Secure .NET C# Web APIs (custom development) integrated with Azure Cognitive Services (Face API), others TBD |
| Loan Submission | Secure .NET C# Web APIs (custom development), Azure Cosmos DB |
| Risk Assessment & Underwriting | Secure .NET C# Web APIs (custom development) integrated with Azure Open AI? Other models? (Model TBD) |
| Storage | Azure Storage |
| Database | Azure Cosmos DB |

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