



Australian Government



GitHub CoPilot

Creating efficiencies in application and data modelling development using a code assistant.

Australian Digital Health Agency





Executive Summary

Problem Faced	Solution Overview	Benefits and Impact
Development of Applications requires continuous improvement to ensure the product remains relevant, secure and up to date. Some of the efforts above require additional research, UX design and re-coding of the product which can be time consuming when it's a simple change. As the Agency increases its development resourcing to align with the Strategic Commissioning Framework, it is supporting applications that have been externally developed or maintained. This has reduced the Agency's knowledge in how the product is built and why particular code has been written	The GitHub CoPilot is an add-on feature that works within software development tools such as Visual Studio and Rider. GitHub CoPilot works with the developer and is available in three different modes: Chat, Edit and Agent. These three options provide the developer control on how much input they will receive from the product. Chat - This option is the traditional model ask/answer. This is useful when you are completing research or trying to understand a section of code. Edit - This option is where the developer will provide context, select the part of code and ask CoPilot to action a request. CoPilot then	• Faster development cycles for minor and major changes. • Reduced time spent on research and rework. • Improved developer productivity and focus on higher-value tasks. • Accelerated onboarding for internal teams. • Reduced time to understand legacy or third-party code. • Improved maintainability and knowledge transfer. • Faster and safer testing using synthetic data. • Improved test coverage and code quality. • Reduced compliance risks.



Problem Faced

a particular way. This increases time the internal team takes to resolve issues or deliver enhancements as a lot more research is required to understand the code base.

Availability of testing data due to restriction on health information causes delays in the code being tested efficiently.

Solution Overview

provides its recommendation, and the developer can implement or decline.
Agent - this option is very powerful, the tool works by analysing the entire project/code. It is able to handle tasks where it impacts more than one section of code. This is useful for renaming or categorisation changes.

Overall, the add-on is able to work with the developer to review code, provide code suggestions, update unit testing and provide context about the code. GitHub CoPilot is available as an option through the Azure Marketplace under the Agency's Microsoft Enterprise Agreement.

Benefits and Impact

- Scalable AI support aligned with strategic goals.
- Cost-effective augmentation of development teams.
- Supports agile and responsive service delivery.
- Efficiency gains through automation and intelligent assistance.
- Cost savings by reducing reliance on external contractors.
- Improved decision-making with contextual code insights.
- Enhanced community outcomes via faster digital health service delivery.
- Environmental benefits from reduced compute time and energy use.



Problem Faced

Solution Overview

Benefits and Impact

GitHub CoPilot provides various models for the developer to work with to ensure the response are in line with what the developer is coding.

Installing GitHub CoPilot into our environment will provide the Australian Digital Health Agency faster code development and increases the time developers can spend on problem solving.



Target Audience and Stakeholders

The key users are software engineers and clinical information modellers.

Consultation was completed with our Cyber Security Team to assess the safety of the tool and mitigations needed to be put in place to ensure alignment of Essential 8 could be maintained. Our legal team reviewed the terms and conditions to ensure our Intellectual Property was protected and recommended amendments to the contract management plan to manage the risk. Corporate ICT was also engaged to ensure the tool could be supported by the Agency.

Risks and Mitigation Overview

Risk: Reduction in developers skillsets due to reliance on AI resolving issues for them.

Mitigation: Implementation of specialist on demand training for developers.

Process to ensure all code recommendations by AI is fully completed before peer review processes are completed.

Risk: Potential for Intellectual Property to be lost due to learning of AI.

Mitigation: Business licenses must be procured to ensure the enhanced security posture is offered and IP is protected.

Risk: Code suggestions may include bad practices, poor error handling and vulnerabilities.

Mitigation: Complete regular peer review prior to merging and releasing branch by senior developers

Regular penetration testing of products as part of release.

Ongoing security training for developers to mitigate application security code vulnerabilities

Use Case Status

Implemented

Use case timeline

- Initiation of the consultation commenced in November 2024. This was completed in February 2025.
- Development phase commenced in February 2025 with completion in June 2025 following configuration and approval for implementation.
- Use of the tool commenced early June followed by user training in late June 2025.



Additional Information		Lessons Learned		Contact information	
N/A		Lessons learned are still underway as we build more understanding of what the product can do. The sections are currently using GitHub CoPilot for some minor tasks and are seeing considerable success in turnaround times and developer engagement.		Responsible Entity Name	Open for Collaboration?
				Australia Digital Health Agency	Open to collaborate
				Area of Entity	Use Case Contact
				Digital Solutions Division - Software Engineering	Megan Doherty Megan.doherty@digitalhealth.gov.au
				Use Case Website/s	Use Case Owner
				N/A	Megan Doherty, Director of Software Engineering



Screenshot/s

```
// The issue is that if a NASH certificate looks like generic (or something like that), it's not a .cer file and it's not a .pfx file.
// "Serial Number" can be found in the details once the certificate is installed.
// Type the Serial number, don't copy and paste it, remove the spaces and use uppercase.

// Obtain the certificate for use with TLS and signing
X509Certificate2 cert = X509CertificateUtil.GetCertificate(
    FindValue: "Serial Number",
    X509FindType.FindBySerialNumber,
    StoreName.My,
    StoreLocation.CurrentUser,
    valid: true
);

// Create PCEHR header
CommonPcehrHeader header = PcehrHeaderHelper.CreateHeader();
// Override this value to the current patient's IHI.
header.IhiNumber = "IHI";

// Instantiate the client
// SVT endpoint is "https://services.svt.gw.myhealthrecord.gov.au/doesPCEHRExist"
// Production endpoint is "https://services.ehealth.gov.au/doesPCEHRExist"
DoesPCEHRExistClient doesPcehrExistClient = new DoesPCEHRExistClient(new Uri("https://DoesPCEHRExistEndpoint"), cert, cert);

// Add server certificate validation callback
ServicePointManager.ServerCertificateValidationCallback += ValidateServiceCertificate;

try
{
    // Invoke the service
    DoesPCEHRExistResponse response = doesPcehrExistClient.DoesPCEHRExist(header);

    // Get the soap request and response
    string soapRequest = doesPcehrExistClient.SoapMessages.SoapRequest;
    string soapResponse = doesPcehrExistClient.SoapMessages.SoapResponse;
}
catch (FaultException fax)
{
    // Handle any errors
}

reference | 0 changes | 0 authors, 0 changes
private bool ValidateServiceCertificate(object sender, X509Certificate certificate, X509Chain chain, SslPolicyErrors sslPolicyErrors)
```

Step-by-Step Breakdown

1. Certificate Retrieval

Active Document Apply

```
X509Certificate2 cert = X509CertificateUtil.GetCertificate(
    "Serial Number",
    X509FindType.FindBySerialNumber,
    StoreName.My,
    StoreLocation.CurrentUser,
    true
);
```

- Retrieves a NASH certificate from the Windows certificate store.
- This certificate is required for secure communication and signing requests.

2. Header Creation

Active Document Apply

```
CommonPcehrHeader header = PcehrHeaderHelper.CreateHeader();
header.IhiNumber = "IHI";
```

- Creates a request header and sets the patient's IHI (Individual Healthcare Identifier).

3. Client Instantiation

What are the potential improvements I can make to the error handling in this method?

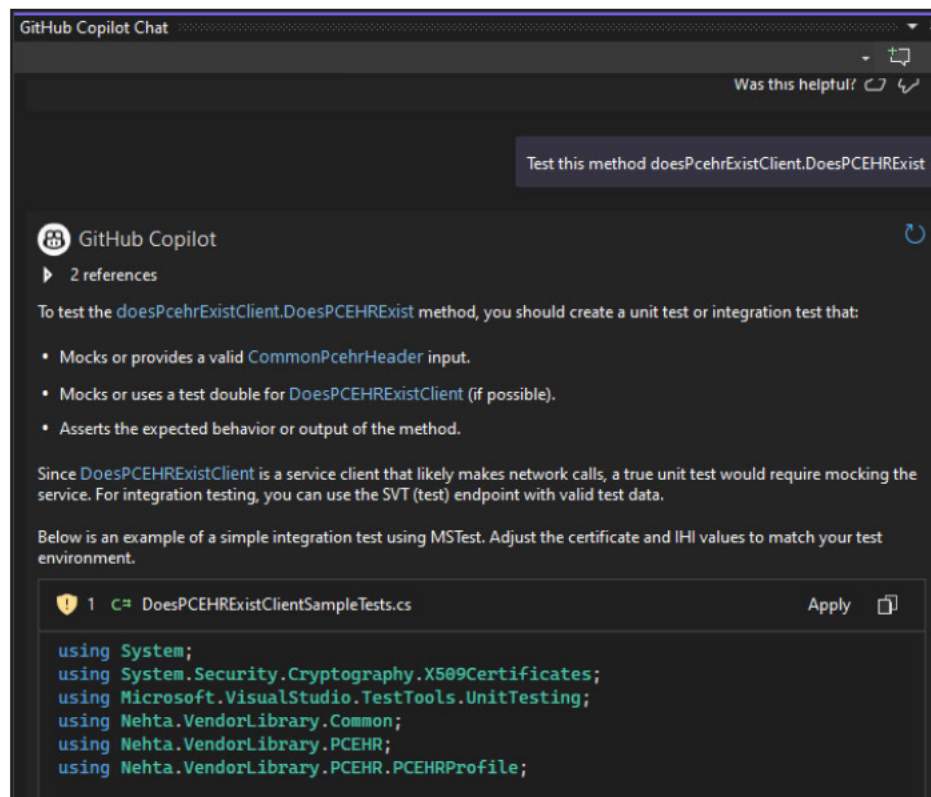
+ 📄 Active Document ×

Ask Copilot or use @workspace

📄 🗨️ Ask - GPT-4.1



Screenshot/s



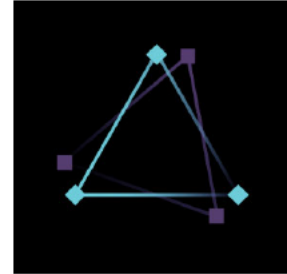
```
namespace PCEHR.Sample.Tests
{
    [TestClass]
    public class DoesPCEHRExistClientSampleTests
    {
        [TestMethod]
        public void DoesPCEHRExist_ReturnsResponse()
        {
            // Arrange: Use valid test certificate serial and IHI for SVT
            var cert = X509CertificateUtil.GetCertificate(
                "YOUR_TEST_CERT_SERIAL",
                X509FindType.FindBySerialNumber,
                StoreName.My,
                StoreLocation.CurrentUser,
                true);

            var header = PcehrHeaderHelper.CreateHeader();
            header.IhiNumber = "YOUR_TEST_IHI";

            var endpoint = new Uri("https://services.svt.gw.myhealthrecord.gov.au");
            var client = new DoesPCEHRExistClient(endpoint, cert, cert);

            // Act
            var response = client.DoesPCEHRExist(header);

            // Assert
            Assert.IsNotNull(response);
            // Optionally, check specific response fields
            // Assert.IsNotNull(response.accessCodeRequired);
        }
    }
}
```

Detailed Overview

Version Control

Version	Date	Author	Description of Changes
1.0	3 Feb 2025	GovAI	Version 1 created
1.1	17 Mar 2025	GovAI	Modified based on feedback
2.1	01 Jul 2025	Megan Doherty	Updated for use case of GitHub CoPilot

Index

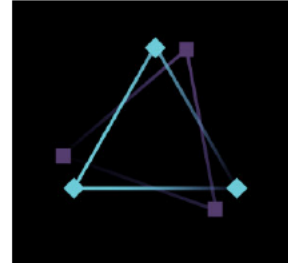
Responsible Organisation Category.....	8
Scope of the Use Case	9
Ethical Considerations	9
Value of the Use Case.....	9
AI Process Type.....	10
AI Technologies Utilised	11
Technical Elements.....	12

Note: For details about category items in the detailed overview, see *APS AI Use Case Repository Guidance- Guidance for Use Case Owners and Editors*.

Responsible Organisation Category

Select the Classification of the Functions of Government - Australia (COFOG-A) 3-digit category that best identifies the functional area associated with your AI use case.

☐ 01 - General Public Services	Choose an item.
☐ 02 - Defence	Choose an item.
☐ 03 - Public Order and Safety	Choose an item.
☐ 04 - Economic Affairs	Choose an item.
☐ 05 - Environmental Protection	Choose an item.
☐ 06 - Housing and Community Amenities	Choose an item.
☒ 07 - Health	079 - Health (other)
☐ 08 - Recreation, Culture, and Religion	Choose an item.
☐ 09 - Education	Choose an item.
☐ 10 - Social Protection	Choose an item.
☐ 11 - Transport	Choose an item.



Scope of the Use Case

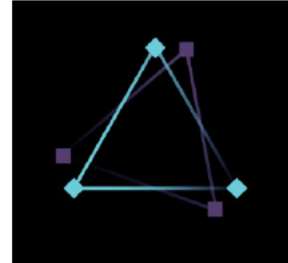
Use the dropdown menus below to identify the scope of your use case.

Geographical focus Choose the region for implementation from the dropdown list	National
Primary type of government interaction Choose the type of government interaction from the dropdown list	Government-to-government (G2G)
Cross-features - Sector Indicate if the use case describes a solution that can be used across sectors or in cross-sector scenarios (Yes/No).	No
Cross-features - Jurisdiction Indicate if the use case describes a solution that can be used across State/Federal borders or in cross-border scenarios (Yes/No)	No

Ethical Considerations

Accuracy, Fairness, Accessibility, Bias and Discrimination	The information/service/recommendation being provided by the AI tool is technically driven, the team have strong governance processes in place to ensure particular coding patterns are followed along with peer reviews.
Privacy	There is no use of personal data.
Rights of Users	Users are provided training through a Microsoft Teams recording. Staff are reminded about not accepting all recommendations of AI and has the autonomy to not use GitHub Copilot if they choose not to.

Value of the Use Case



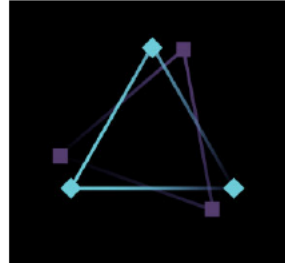
Identify the public value that the solution provides or is expected to provide. Select from the multi-select options.

Improved public service This category refers to solutions that enhance the services provided to end users, whether they are citizens or businesses.	☐ Personalised services ☐ Public (citizen)-centred services ☐ Increased quality of public information and services ☒ More responsive, efficient and cost-effective public services ☐ New services or channels
Improved administrative efficiency This category refers to solutions that increase efficiency, effectiveness, and quality while reducing costs within administrative processes, systems, and services.	☐ Cost reduction ☐ Responsiveness of government operation ☐ Improved management of public resources ☒ Increased quality of processes and systems ☐ Better collaboration and better communication ☐ Reduced risk of corruption and abuse of the law by public servants ☐ Greater fairness, honesty and equality enabled
Open government capabilities This category refers to solutions that enhance the level of openness, transparency, engagement, and communication within public organisations.	☐ Increased transparency of public sector operations ☐ Increased public participation in government actions and policymaking ☐ Improved public control of and influence on government actions and policies

AI Process Type

Select the types of tasks within government operations that the AI solution is performing or expected to perform

Supporting Decision Making- Tasks that support formal or informal agency decision-making on benefits or rights.	☐ Taking decisions on benefits ☐ Managing copyright and intellectual property rights
Analysis, monitoring and regulatory research - Tasks that collect or analyse information that shapes agency policymaking.	☐ Information analysis processes ☐ Monitoring policy implementation ☐ Innovating public policy



	☐ Prediction and planning
Enforcement - Tasks that identify or prioritise targets of agency enforcement action.	☐ Smart recognition processes ☐ Management of auditing and logging ☐ Predictive enforcement processes ☐ Supporting inspection processes ☐ Improving cybersecurity ☐ Registration and data notarisation processes ☐ Certification and validation processes
Internal management - Tasks that support agency management of resources, including employee management, procurement, and maintenance of technology systems.	☐ Internal primary processes ☒ Internal support processes ☐ Internal management processes ☐ Procurement management ☐ Financial management and support
Public services and engagement - Tasks that support the direct provision of services to the public or facilitate communication with the public for regulatory or other purposes.	☐ Engagement management ☐ Data-sharing management ☐ Governance and voting ☐ Payments and international transactions ☐ Supporting disintermediation ☐ Authentication of self-sovereign digital ID services ☐ Service integration ☐ Service personalisation ☐ Tracking of goods and assets along the supply chain

AI Technologies Utilised

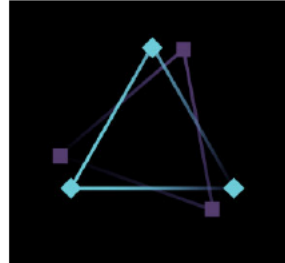
Select the types of AI technologies proposed / utilised to deliver the use case.

Reasoning or Knowledge Representation AI systems that store, structure, and process knowledge to make inferences, derive conclusions, or support decision-making.	☐ Knowledge Representation ☐ Automated Reasoning ☐ Commonsense Reasoning
Planning and Optimisation	☐ Planning and Scheduling

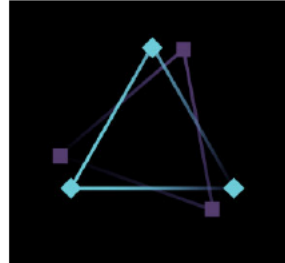


AI techniques that generate, refine, and optimise action sequences or resource allocation to achieve specific goals efficiently.	☐ Searching ☐ Optimisation
Learning and Adaptation AI systems that identify patterns, extract insights, and improve performance over time based on data.	☐ Machine Learning ☐ Deep Learning ☒ Generative AI
Communication and Natural Language Processing AI systems that process, interpret, and generate human language for interaction, comprehension, and automation.	☐ Natural Language Processing (NLP) ☐ Text Generation ☐ Text Mining ☐ Machine Translation
Perception through the Senses AI systems that process and interpret sensory data, such as visual, auditory, or tactile inputs, to understand and respond to their environment.	☐ Computer Vision ☐ Audio Processing
Integration and Interaction with the Environment AI systems that interact with physical or digital environments, including autonomous agents, robotics, and interconnected systems.	☒ Multi-agent Systems ☐ Robotics and Automation ☐ Connected and Automated Vehicles (CAVs)
AI as a Service AI capabilities delivered through cloud-based platforms, offering tools, models, and infrastructure for AI-powered applications.	☒ AI Services (e.g., cognitive computing, machine learning frameworks, bots) ☐ Infrastructure as a Service (IaaS) ☐ Platform as a Service (PaaS) ☐ Software as a Service (SaaS)
Additional Comments or Explanation:	If you have selected any of the subcategories above, feel free to provide more detailed comments or a description of how these elements apply to your specific use case.

Technical Elements



Platform implementation	GitHub Copilot is integrated into IDEs like Visual Studio Code and Rider to provide contextual code suggestions. It operates on GitHub Enterprise Cloud, ensuring secure development environments through file exclusion policies, audit logging, and Microsoft Information Protection integration. GitHub Copilot supports seamless integration with GitHub repositories and CI/CD workflows, enhancing compatibility with existing platforms.	
Model / Algorithm used	GitHub CoPilot has various language models available within the tool. Two of which are included as a standard which are GPT-4.1 and GPT-4.0. Precision models are also included such as Claude and Gemini for specific use cases.	
Data Sources Select the types of data sources used and provide relevant details.	☒ Internal ☒ Public	☐ Third-party ☐ Synthetic
	Details: It is trained using publicly available resources such as public repositories it also reads through the developer's code and add context to the response.	
Risk Assessment and Mitigation Details	Described above in Executive Summary	
Security and Compliance Frameworks Select the security and compliance frameworks and measures implemented. Provide details or additional artifacts if relevant.	☐ Authority to Operate (ATO) ☐ System Security Plan (SSP) ☐ Security Risk Management Plan (SRMP)	☐ Information Security Registered Assessors Program (IRAP) ☒ Penetration Testing
	Details: PEN testing is completed on all our products before they go live.	
Assurance and Government Frameworks	N/A	
Record maintenance	There are records within our ICT support tool to ensure knowledge is retained. The product wiki contains the documentation on how code is reviewed. As our workflows	



	change to include AI generation this will be updated to reflect the change.	
Disengagement	As this is only for a small pool of staff, the use of AI is optional. Although disengagement hasn't been a trend. Staff are more engaged as they are being provided tools to support their roles.	
Performance Metrics and Results	Category	Average Time Saved
	Code Generation & Automation • Generation of code for specific task • Writing of Boiler code • Custom scripts for automation of tasks • Creation of Dummy data	77.7%
	Code Quality & Review • Code Review • Best Practise Recommendations • Solving complex code issues	86.5%
	Research & Design • Research of function within existing code • Query new architecture pattern • Standardising from design to code set including documenting the changes	82.0%