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How to get your SAS\Python\R workout on a new SAS Viya Workbench

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ABSTRACT

SAS Viya Workbench represents a significant leap forward in analytics and IT infrastructure by seamlessly integrating SAS programming with open-source frameworks. This paper explores how SAS Viya Workbench enhances efficiency in IT environments, fosters collaboration between SAS and open-source developers, and accelerates analytics development. Additionally, it outlines the roadmap and future advancements, highlighting the transformative impact of this technology.

INTRODUCTION – SAS VIYA WORKBENCH

In an era where data-driven decision-making is paramount, IT teams and data scientists require robust, scalable, and flexible environments for analytics development. SAS Viya Workbench is a cloud-native solution that empowers users to execute SAS programs alongside open-source languages such as Python and R. This integration enhances interoperability, speeds up analytics workflows, and improves collaboration across teams.

SAS VIYA WORKBENCH – A HYBRID APPROACH

SAS Viya Workbench bridges the gap between SAS and open-source programming by offering a unified environment where both can coexist harmoniously. Key features include:

- Cloud-native flexibility: Runs on containerized infrastructure, allowing for scalability and ease of deployment.
- Multi-language support: Enables the execution of SAS, Python, and R code in the same environment.
- Version control and collaboration: Integrates with Git and CI/CD pipelines for seamless code management.
- Enhanced security and governance: Provides enterprise-level data security, ensuring compliance with IT standards.

BENEFITS FOR IT AND ANALYTICAL DEVELOPMENT

SAS Viya Workbench offers numerous advantages for IT professionals and data analysts, including:

- Streamlined Development: Eliminates silos between SAS and open-source programming, reducing development time.
- Optimized Performance: Leverages cloud-native architecture for efficient workload distribution.
- Interoperability: Facilitates smooth integration with existing IT infrastructure and tools.
- Collaboration & Automation: Supports DevOps principles, automating deployment and improving reproducibility.

ROADMAP AND FUTURE DIRECTIONS

SAS is continuously enhancing Viya Workbench to meet evolving IT and analytics needs. The roadmap includes:

- Expanded Open-Source Integration: Deeper compatibility with frameworks like TensorFlow and PyTorch.
- AI-Powered Enhancements: Improved machine learning capabilities with built-in automation.
- Edge Computing Capabilities: Extending analytics execution to IoT and edge devices.
- Greater Cloud Flexibility: Support for multi-cloud and hybrid-cloud strategies.

SAS VIYA WORKBENCH AT A GLANCE

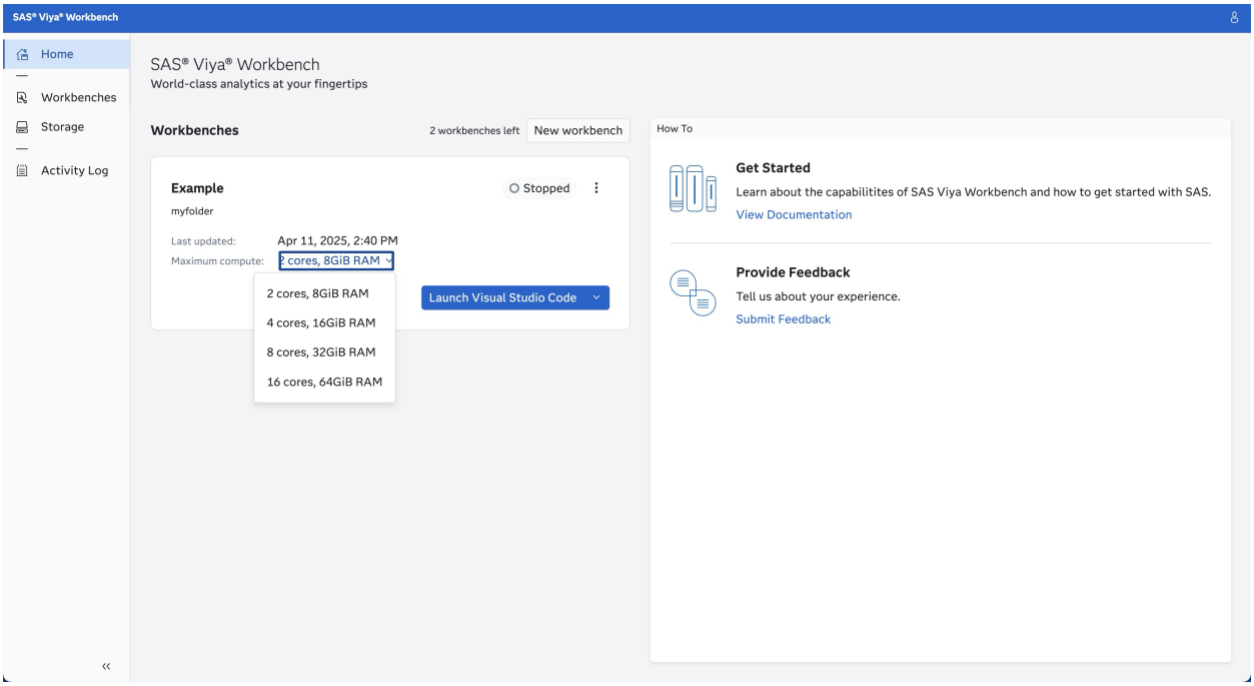

Figure 1: Shows initial screen and Maximum Compute: drop down will show choice of compute.

Note: We will run an example of a clinical study and will try to get a sas code and sas7bdat data in SAS Viya Workbench from a GitHub location, update the file, execute, commit and push the file back to GitHub. We will also see some python example and execute it in workbench.

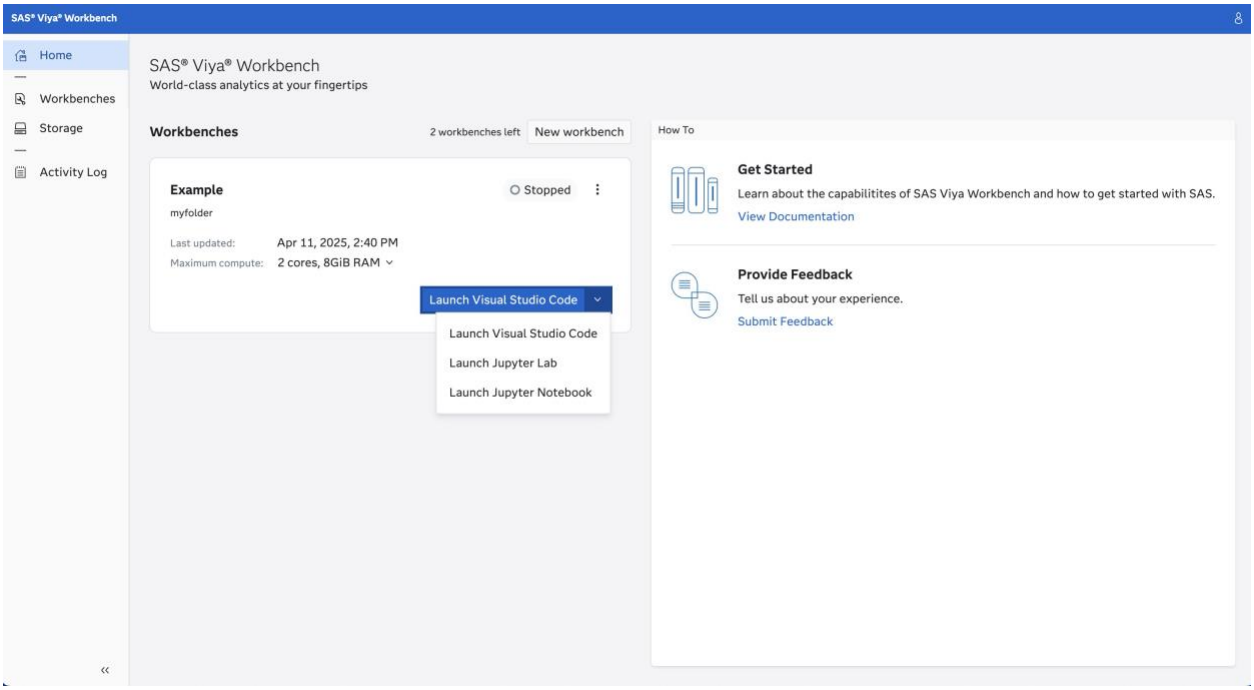

Figure 2: Initial Screen and Launch Visual Studio Code drop down will show choice of IDE.

Note: We don't have a choice sas studio editor in sas Viya workbench. All SAS coding will be on Visual Studio Code Editor or in SAS Notebook, which is similar to Jupyter Notebook.

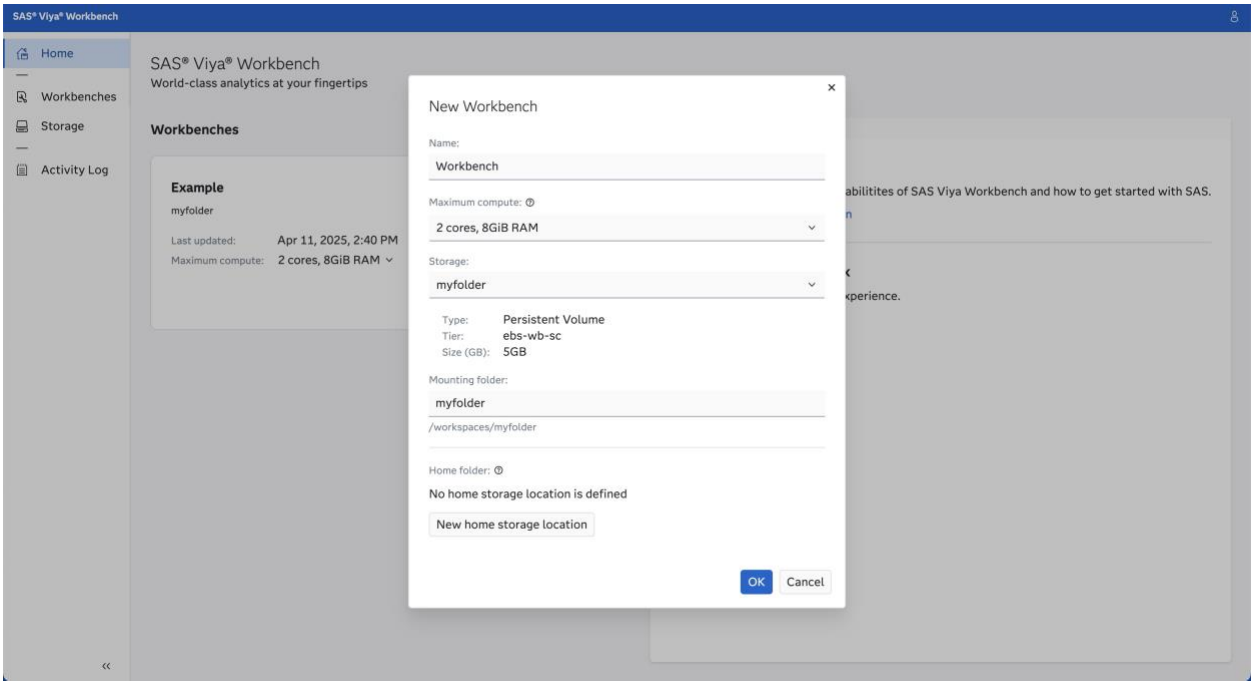

Figure 3: New Workbench button will give you a new option to choose a new workbench instead of the one shown on initial screen.

Note: Anything (code/data) stored on my folder will be available in the IDE.

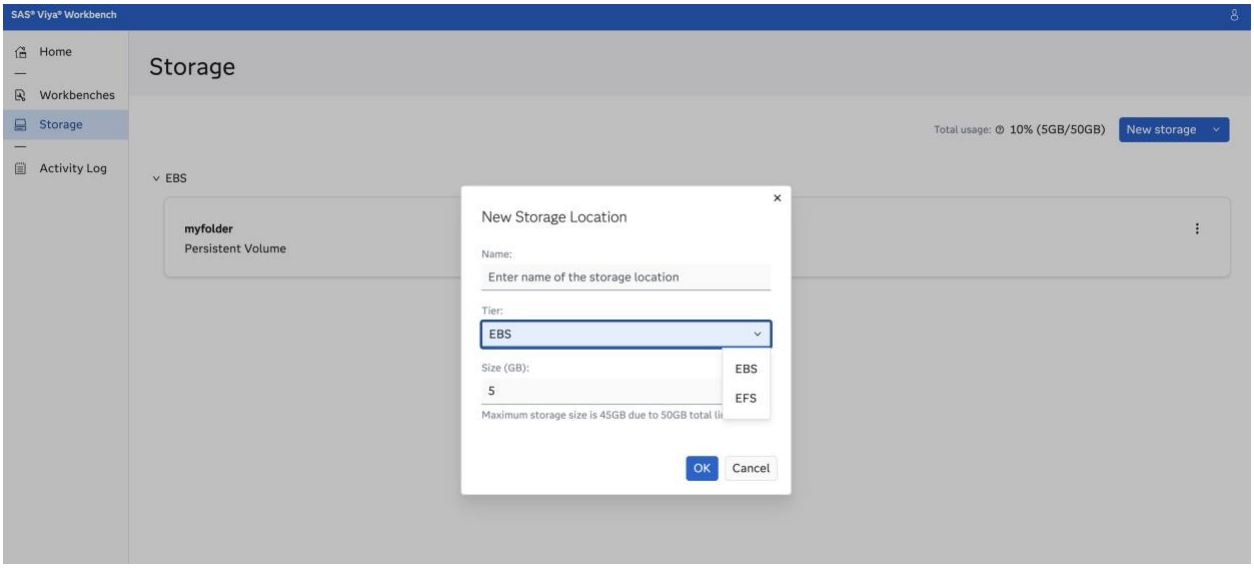

Figure 4: User can bring their cloud storage location e.g. EBS or EFS.

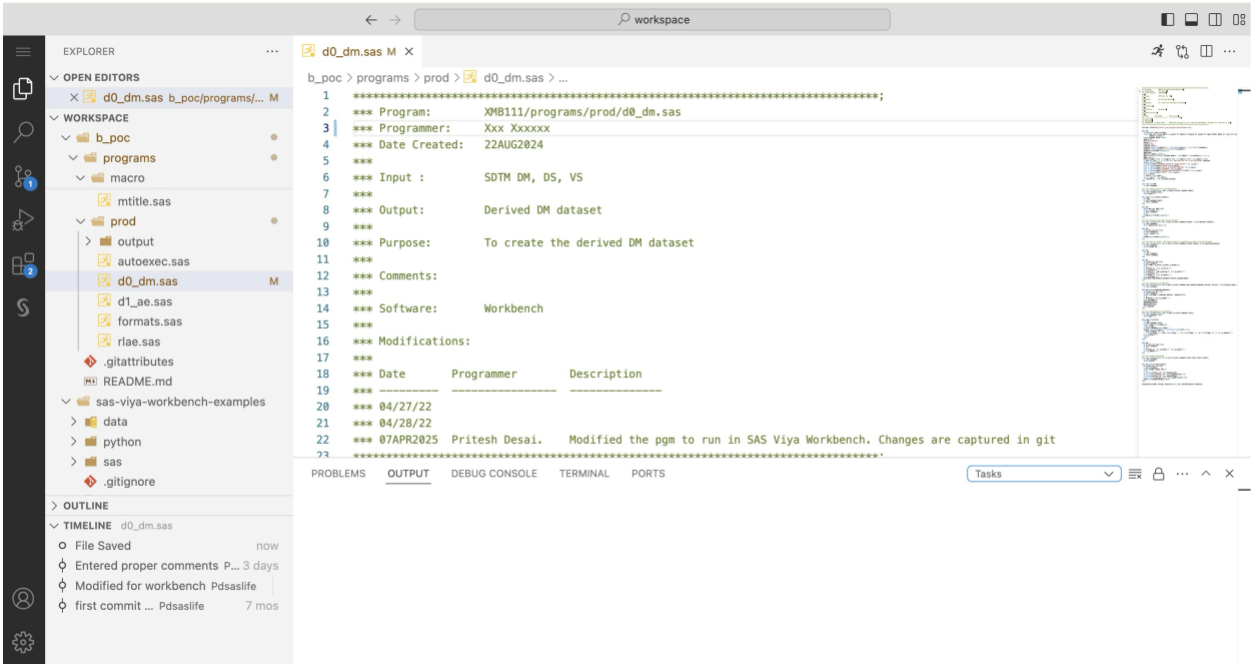

Figure 5: Show Visual Studio Code Editor running a sas program d0_dm.sas.

Note: Users can navigate to the content of the folder, surfaced here a WORKSPACE or clone a git repo directly to this workspace.

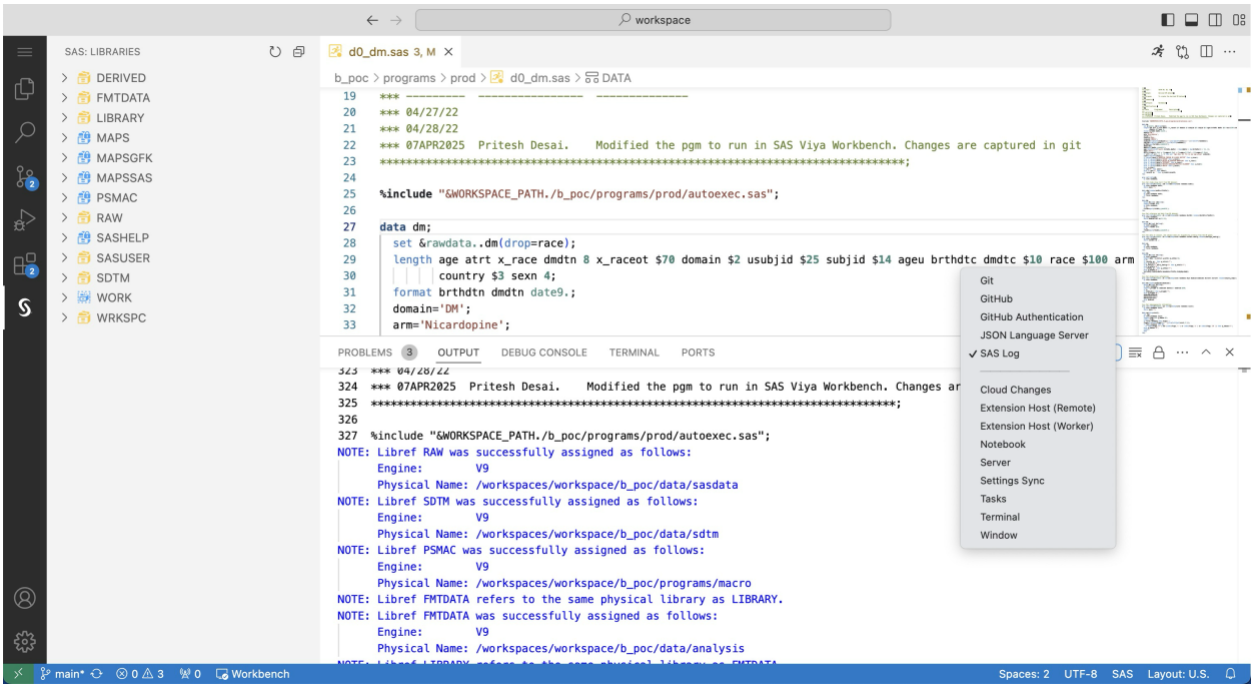

Figure 5: d0_dm.sas sas code execution shows how log looks like in VS Code Editor OUTPUT tab.

Note: There is a lot going with sas code execution when using VS code editor in SAS Viya Workbench. We see there are 3 problems in the log. This folder is attached to my GitHub, so it detected that I have changed the code and we will see that in few screenshots below.

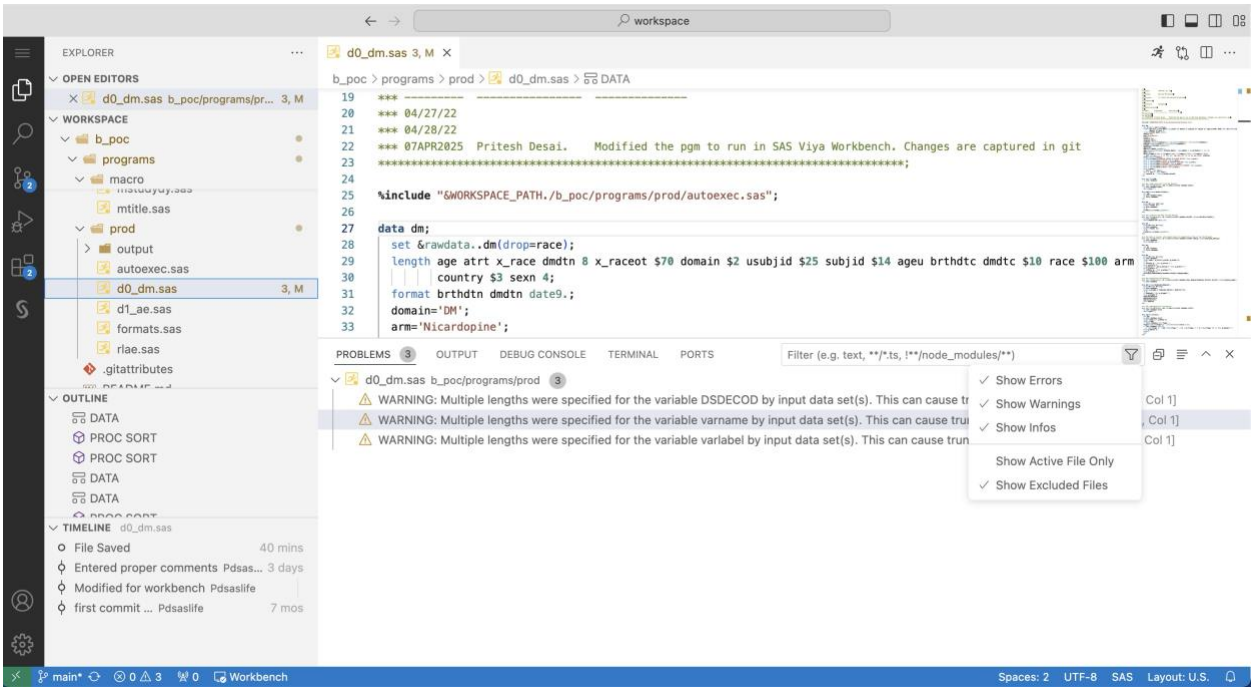

Figure 6: d0_dm.sas sas code execution shows how Error/Warning/Infos looks like in VS Code Editor.

Note: After sas code executes, we will get our usual log, any output e.g. from proc print will be displayed a new pop-up window. On the left black vertical tab, at present we are in Explorer tab navigating all the files. OUTLINE will give you a code flow and TIMELINE will give you all the commits from GitHub or save files.

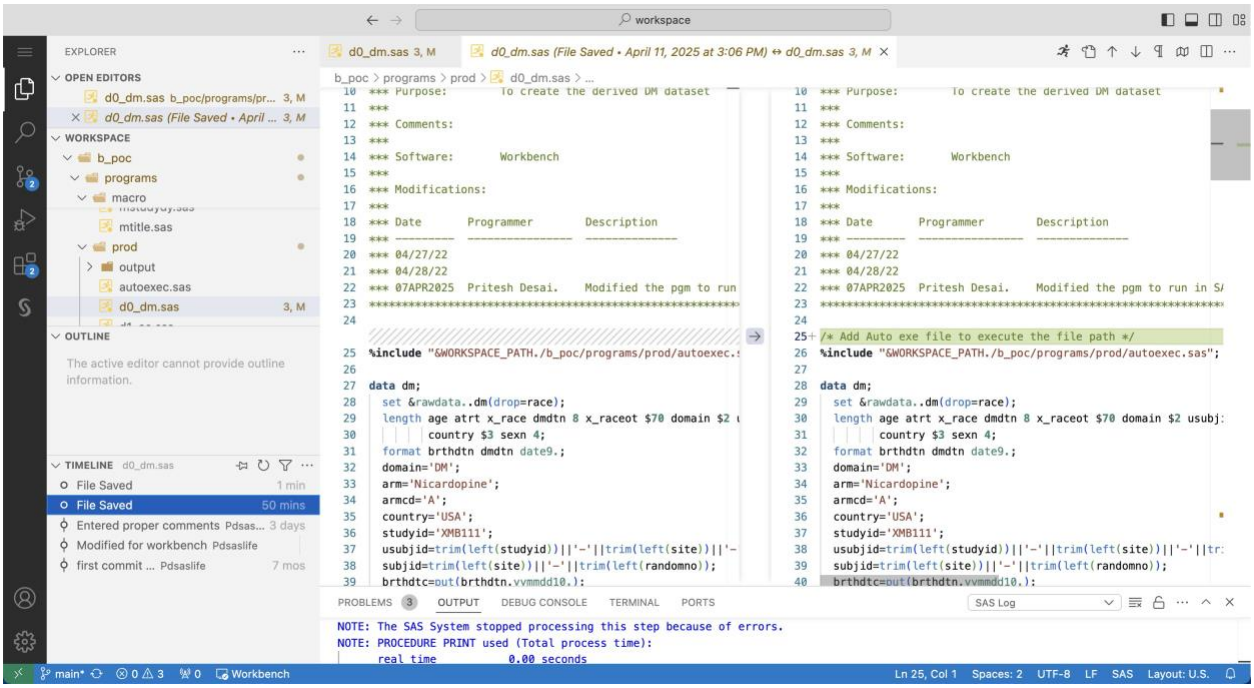

Figure 7: TIMELINE will help you compare the file either with previous commit or with previously saved file.

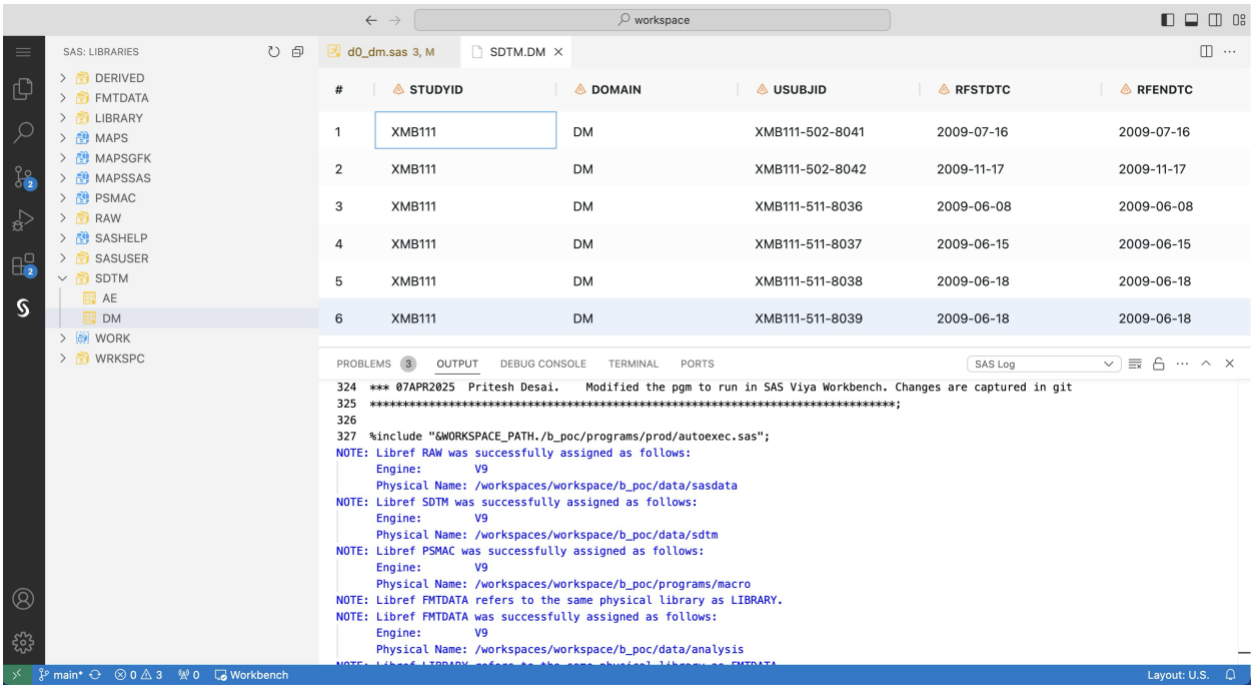

Figure 8: If you click on SAS icon on a Left vertical tab, it will show you your SAS Libraries.

Note: After sas code execution, we are looking at Explorer window. We are looking at SDTM library and viewing DM dataset. Unlike SAS Studio and other explorer window of the past, this plugin has limited functionality.

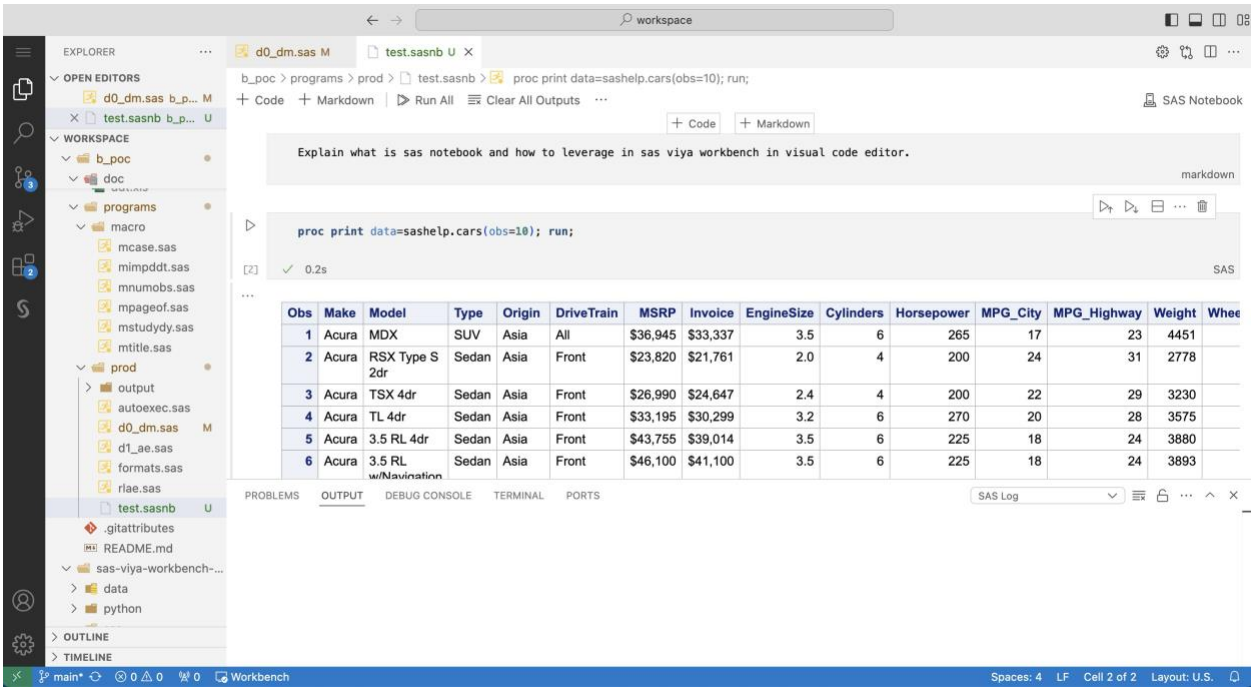

Figure 9: Shows how to work with test.sasnb SAS notebook file.

Note: The file extension when working on sas notebook is .sasnb. Notice the '+ Code' and '+ Markdown'. In Markdown you can enter a text in a markdown box, like a comment block and enter explanation of what that code is doing. With Code we enter a sas code and execute the play button to look at a log or results.

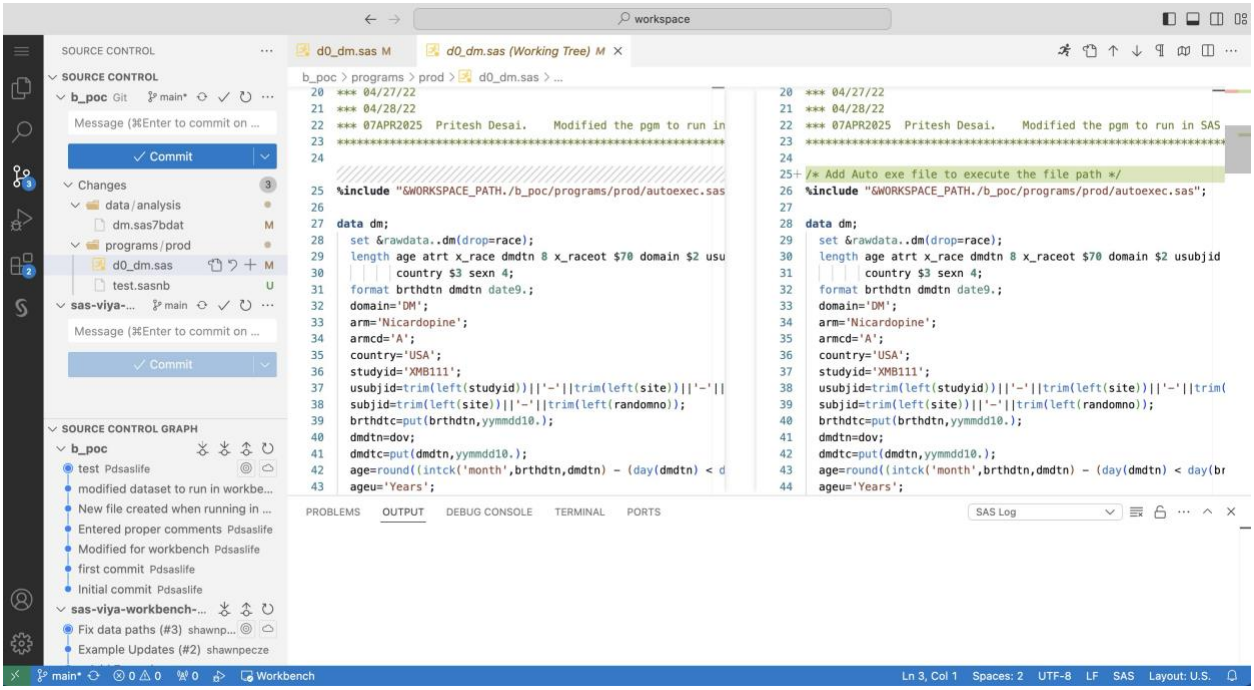

Figure 9: Shows GitHub connection and what changes occurred from last commit.

Note: On a left vertical tab we will navigate to GitHub Icon called Source Control. It shows Source Control and Source Control Graph and files in the folder that we have to commit. I had changed some files in my b_poc folder that I will have to commit. GitHub will authenticate before committing and Push the file to main.

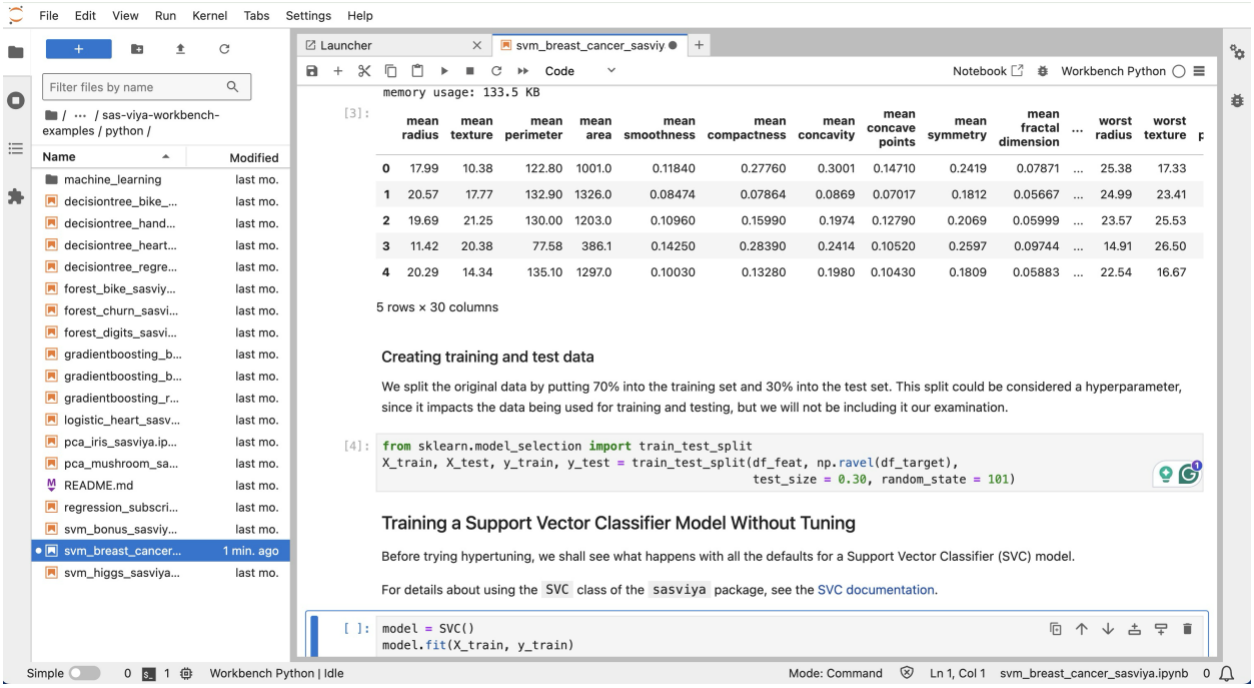

Figure 10: Shows python example running python on python IDE or Python Notebook.

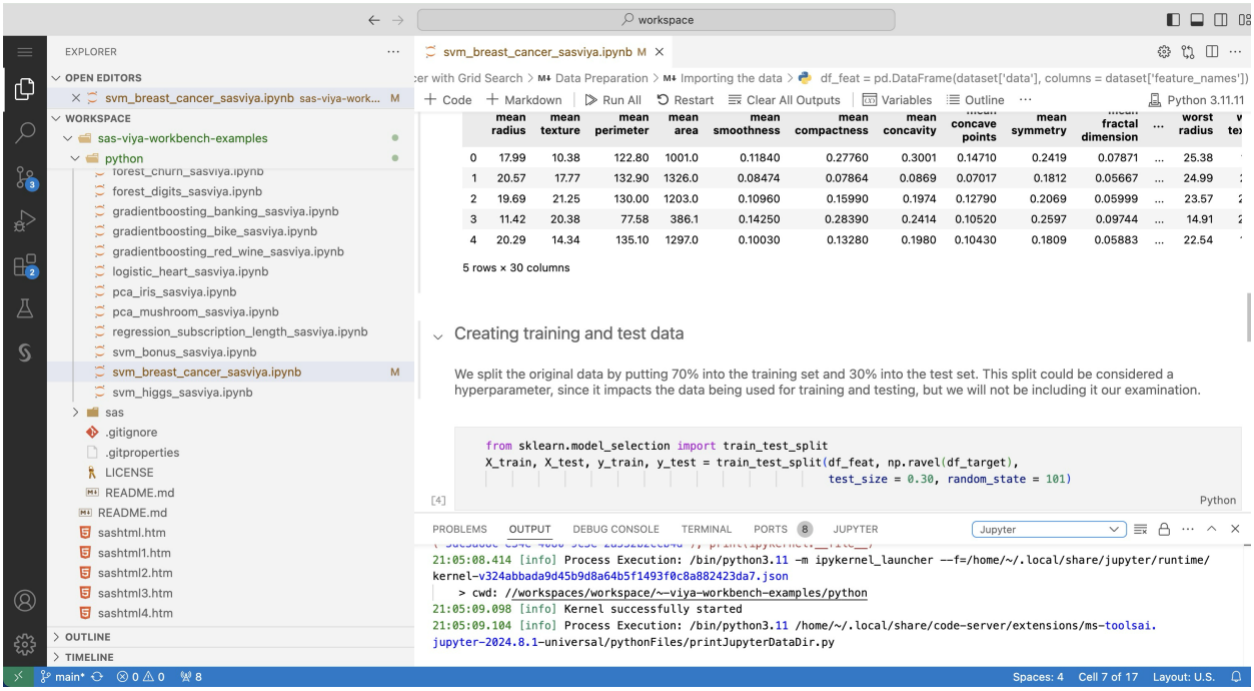

Figure 11: Shows python example running from Visual Studio Code Editor

Note: User has a choice of using Python kernel and bring any python package. We are using Python 3.11.11. User can use a traditional python env and also has all the options to leverage SAS Viya CAS based procs for MPP based processing.

CONCLUSION

SAS Viya Workbench represents the next frontier in IT and analytics, offering unparalleled flexibility and performance. By fostering a hybrid approach that unites SAS and open-source programming, it empowers organizations to harness the full potential of their data and drive innovation at scale. As the roadmap unfolds, the possibilities for further integration and expansion promise to revolutionize the analytics landscape.

RECOMMENDED READING

- SAS Viya Workbench User Guide:
  https://go.documentation.sas.com/doc/en/workbenchcdc/v_001/workbenchwlcm/home.htm

- SAS Viya Quick Start GitHub Repository:
  https://github.com/sassoftware/sas-viya-quick-start

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors at:

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