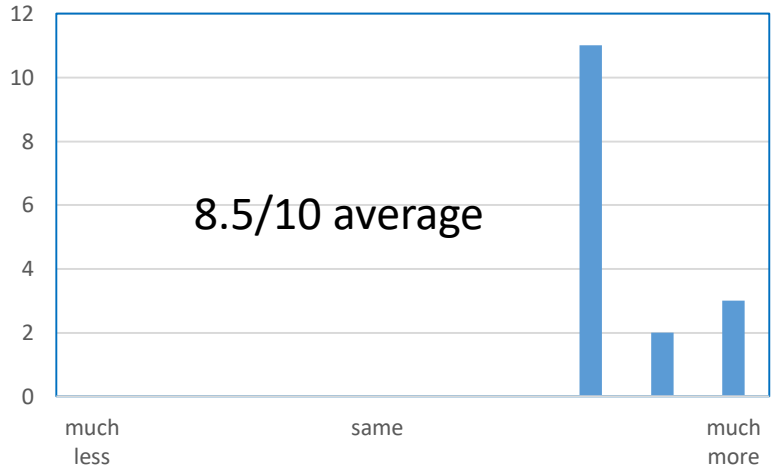
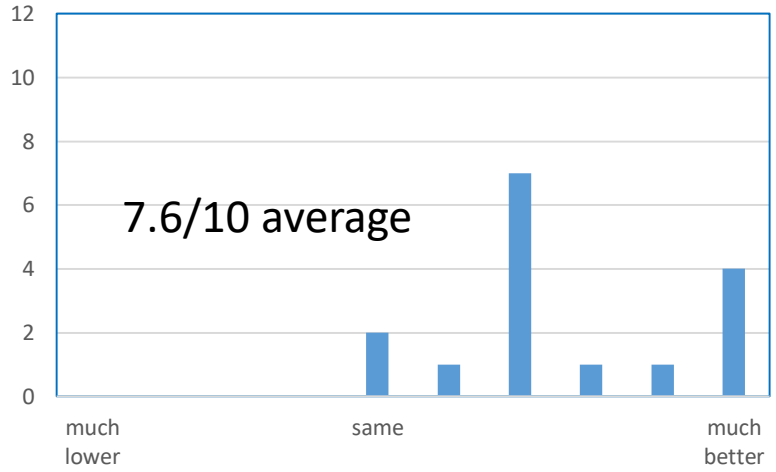
Early user feedback (16 users)
Sept 2023

- Introduced to HDLGen-ChatGPT / ChatGPT / Vivado process in Sept 2023 for 2-3 weeks.
- 4th year of a 5-yr M.E programme
- Knowledgeable in
    - Digital systems design
    - VHDL models and testbench creation
    - AMD Vivado EDA tools for HDL capture, syntax checking, simulation, synthesis and FPGA prototyping
- 16 respondents

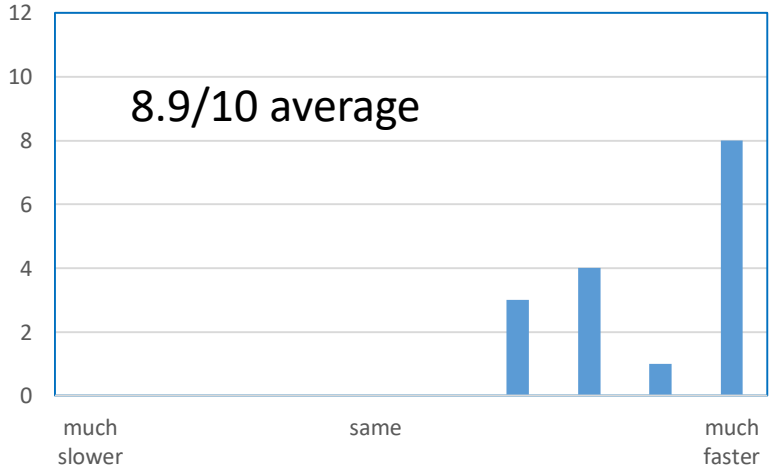
Rate effectiveness of
HDLGen-ChatGPT / ChatGPT / EDA tools compared to
Vivado-only based approach (used in 22-23)



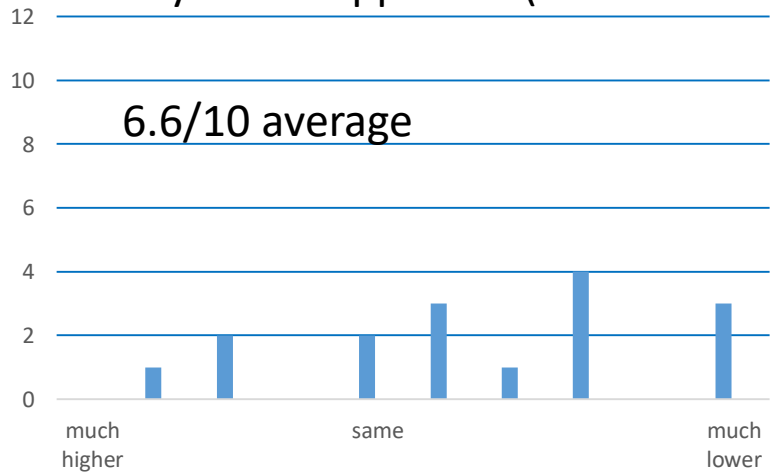
Rate expected quality of HDL code generated using
HDLGen-ChatGPT / ChatGPT / EDA toolsuite compared to
Vivado-only based approach (used in 22-23)



Rate speed of project completion using
HDLGen-ChatGPT / ChatGPT / EDA toolsuite compared to
Vivado-only based approach (used in 22-23)



Rate likelihood of design capture errors, using
HDLGen-ChatGPT / ChatGPT / EDA toolsuite compared to
Vivado-only based approach (used in 22-23)



If beginning a new assignment, which approach would you recommend?

- Vivado only approach
- HDLGen-ChatGPT / ChatGPT / Vivado approach **100%**

What do you like most about the HDLGen-ChatGPT / ChatGPT / Vivado approach?

- Saves time, well organized user interface, easy to use
- Much easier and faster. Can now complete a complex project within 30 minutes. Before it could take hours dealing with syntax and type conversion type errors
- Ability to write pseudo code in place of HDL. VHDL. Being able to write pseudo code and have chat gpt interpret that.
- With this approach an Engineer can focus on digital design and not get bogged down in the HDL's syntax which can take a significant amount of time
- Allowed me to focus more on understanding course content and take the time to do this properly

What do you like least about the HDLGen-ChatGPT / ChatGPT / Vivado approach?

- ChatGPT unreliable and struggles with more complex VHDL.
- Testbench stimulus creation requires other software
- Improve UI design. All functional design requirements are really polished.
- Include single-click to generate model, testbench and launch the project.
- ChatGPT unreliable and struggles with more complex VHDL.
- Testbench stimulus creation requires other software (*table capture*)
- Improve UI design. All functional design requirements are really polished.
- Include single-click to generate model, testbench and launch the project.

Other comments or suggestions

- Useful application in rapid development of basic architecture and makes the user focus on more important terminology and logic.
- Window size and zoom functionality required
- Improve test plan entry and formatting
- Investigate possible HDLGen-ChatGPT API for ChatGPT. Submit >1 prompt to ChatGPT, and auto-copy code from ChatGPT code box to Vivado (or other EDA tool)
- Visualisation of the ports as the are added