Quick Overview of the CPT

- Cling Packaging Tool (CPT) is a command line utility that can easily build Cling from source and generate installer bundles for a variety of platforms including:
  - Ubuntu
  - Debian-based platforms
  - Windows
  - Red Hat Linux based distributions
  - Mac OS X
  - Unix-like platforms

- CPT is an incredibly useful and flexible tool, but there are several improvements that can be made to make the user’s experience with the CPT even more seamless
Project Objectives

- Improvements to be made
  - Fixing platform issues
    - This mostly entails fixing builds with LLVM on Linux and Mac OS
    - Debian packaging creation
    - Fixing Windows builds
  - Rewriting the CPT itself
    - A full rewrite of the CPT, fixing old features as well as adding new features, and getting rid of non-functional options
  - Rewriting documentation
    - Adding new documentation for rewrite and fixes, as well as rewriting old documentation for overriding variables
  - Fixing miscellaneous issues
    - Fixing specific software dependency issues
Rewriting the CPT

● Using a different program execution starting point
  ○ I added a new if name block separate from all the program functions

● Revamping the argument parser
  ○ I added an option to only build Cling and not package it, as users want this option
  ○ I added some dependent arguments so that errors would be caught before any building is done
  ○ I also renamed some arguments for consistency

● I added a feature to specify the number of CPU cores to use when building Cling

● Reduced global variable mutation
  ○ Implemented parameter passing style for a couple of global variables where possible, as most of the global variables are deeply embedded in the CPT

● Made the CPT more flake8 compliant, although almost all of the flake8 errors are due to the lines being longer than 79 characters
Fixing platform issues and miscellaneous issues

- Fixing builds using LLVM prebuilt binary packages on Linux and MacOS and adding that to continuous integration
  - I have added LLVM 13 prebuilt binary support for Ubuntu and MacOS, I wasn't able to test these prebuilt binaries as the LLVM 13 branch hasn't been merged
- Fixing Debian packaging creation
  - I have fixed Debian packaging creation for the current-dev option, I fixed the debianize function
- I fixed the verbose output flag option and fixed the cmakeDir variable for Windows builds
- I’m currently testing CPT on other Linux distros, Windows and MacOS
Future work

- Reduce global mutation even more
- Adding a test option for running tests on the CPT options
- Also adding Cling and CPT to Github Actions
- Adding prebuilt binary support for other Linux distros
Thank you!