QAMP Fall'22 - Checkpoint 1

Good first issues in rustworkx #19

Mentor: *Matthew Treinish (@mtreinish)*

Prakhar Bhatnagar

Outline

Updates for Checkpoint 1

Deliverables

Introduction to rustworkx

Progress

Future Work

Deliverables

Expected output of the project

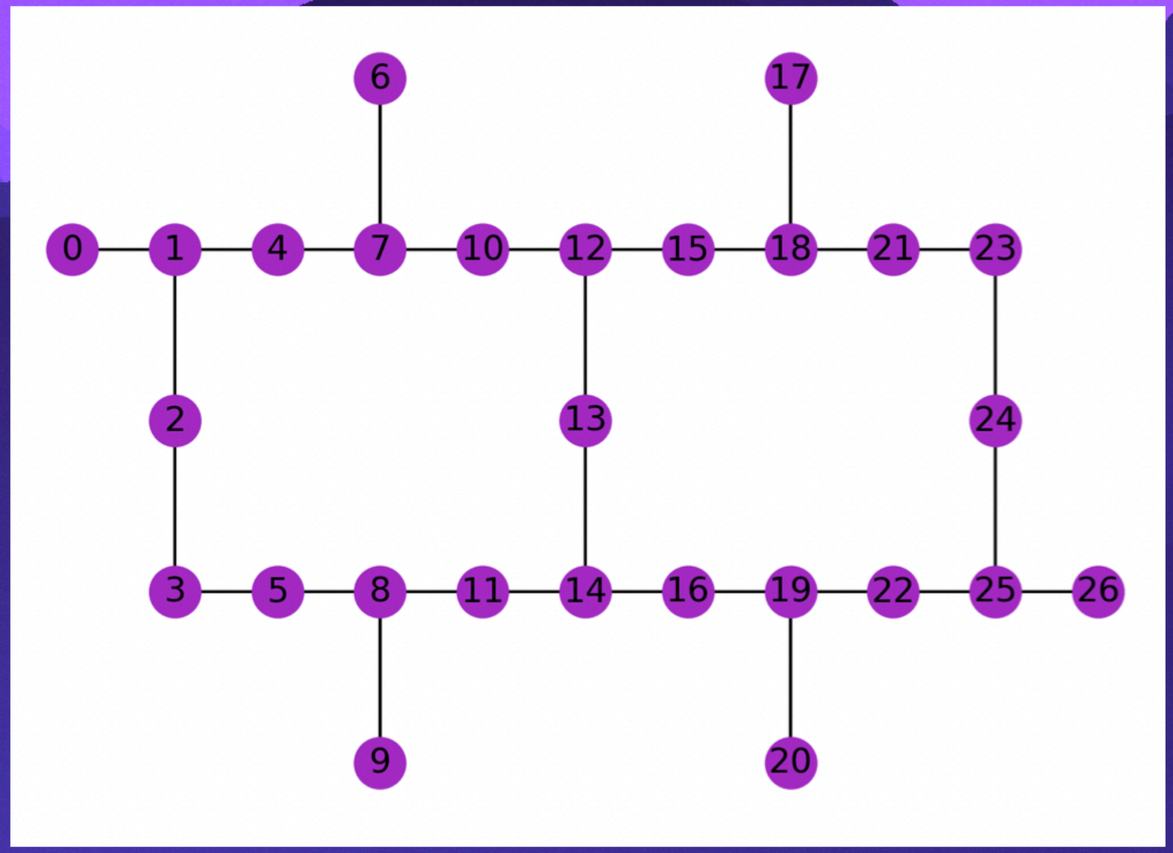
- The project is to work through good first issues on rustworkx.
- So ideally pull requests and reviews of others pull requests on rustworkx are the deliverable for this project.

- My understanding - Help mature the project as a standalone general purpose graph library.

What is rustworkx?

A high performance Python graph library implemented in Rust.

- rustworkx is a general-purpose graph theory library focused on performance. It wraps low-level Rust code into a flexible Python API, providing fast implementations for graph data structures and popular graph algorithms.[1]
- Used extensively throughout qiskit-terra for graph related tasks.



[1] Treinish, Matthew, et al. "retworkx: A High-Performance Graph Library for Python." arXiv preprint arXiv:2110.15221 (2021). https://doi.org/10.48550/arXiv.2110.15221.

Progress so far

Primarily PRs on the rustworkx repository

- Expand retworkx-core testing #587
  - Added tests for shortest path algorithms #672
  - Added tests for connectivity module #677
- Expand Generators Module #150
  - Added empty and complete graph generators #679
- QA work (micro PRs)
  - updated library name in template #686
  - Fixed stray reno and added script to check the same #691

Future Work

Outline for the next checkpoint

- Make code contributions and (hopefully) close open issues in the repository.
- Identify areas to improve rustworkx functionality offering an advantage over other graph libraries.
- Help review open PRs and contributions.

Thank You