QAMP Fall'22 - Final Checkpoint

Good first issues in rustworkx #19
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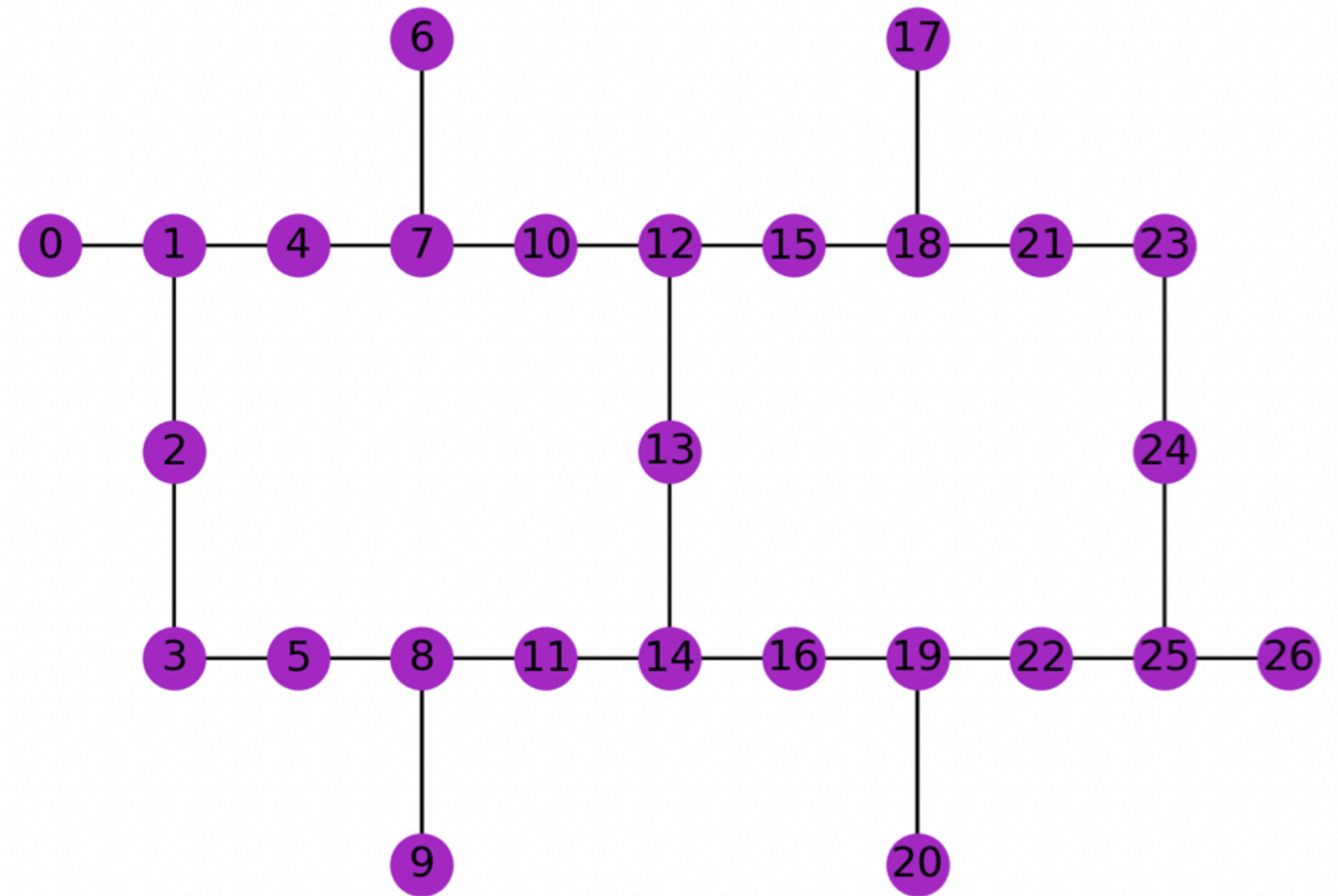**Prakhar Bhatnagar**

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
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

- Moved weakly connected components to rustworkx core #698

- QA work (micro PRs)

  - updated library name in template #686

  - Fixed stray reno and added script to check the same #691

Thank You