

QAMP Spring 2022

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Expand qiskit-neko testing



Qiskit-neko

- New effort to add a proper integration test suite to the overall qiskit project.
- Designed to be run in CI to ensure that a proposed change to any qiskit project doesn't break backwards compatibility or break an interface that another qiskit project is currently using.

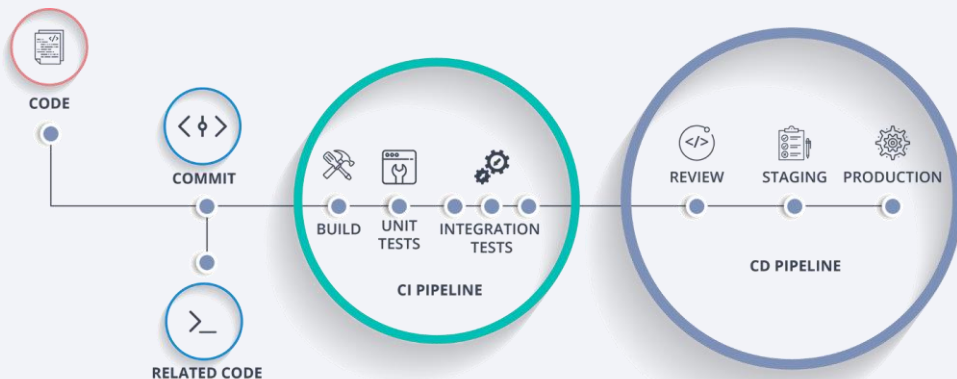
☰ README.md

qiskit-neko

license Apache-2.0

This repository contains integration tests for Qiskit. These tests are used for primarily for two purposes as backwards compatibility testing for Qiskit to validate that changes proposed to any Qiskit project do not break functionality from previous release and to validate that functionality works as expected with different providers. A provider in Qiskit is a package that provides [backend](#) objects that provide an interface to Quantum hardware or a simulator.

Installing qiskit-neko

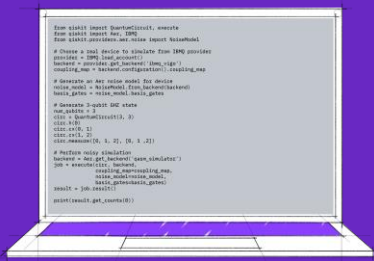


The Project

Expand qiskit-neko testing **area: testing** **from: mentor** **mentee needed** **type: code**

#10 opened on Feb 8 by mtreinish

- Add tests for different sub sections of qiskit such as circuits, nature, machine learning and visualizations.
- Start running qiskit-neko in CI with proper integration with qiskit



```

from qiskit import QuantumCircuit, execute
from qiskit import Aer, IBMQ

from qiskit.providers.fake_provider import FakeMumbai

# Choose a real device to simulate from IBMQ provider
provider = IBMQ.get_provider()
backend = provider.get_backend('ibmq_16melbourne')
monitoring_mgr = BackendMonitoringManager(monitoring_mgr)

# Generate an Aer noise model for device
noise_model = NoiseModel.from_backend(backend)
result_getter = result_getter

# Execute through IBMQ client
qc = QuantumCircuit(2)
qc.h(0)
qc.cnot(0,1)
qc.measure(0,1)

# Perform noise simulation
backend = Aer.get_backend('aer_simulator')
job = backend.run(qc, noise_model=noise_model,
                  monitoring_expressing_mgr=
                  monitoring_mgr)
result = job.result()

print(result.get_counts())
    
```

Progress

- Understood the code base of qiskit-neko along with its working and future directions.
- Narrowed down on the subsection and a sample tutorial for reference for which the tests will be added.
- Brushing up unittest and CI concepts from relevant documentations.

Thank you!

