SparkFHE: Implementation of a demonstration application

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Summary

SparkFHE

- Apache Spark is an open-source, distributed processing system used for big data workloads.
- Homomorphic encryption is a form of encryption allowing one to perform calculations on encrypted data without decrypting it first.
- SparkFHE = Spark + FHE (Fully Homomorphic Encryption)
Proposed final deliverable

• A downloadable desktop application that can demonstrate the working of SparkFHE
• A user friendly UI
• Option to run the tasks locally and on a cluster
Milestone 3
Progress

Demo
Conclusion

• A proper python API for SparkFHE has been generated using SWIG which could be used in future for applications
• An easy to use application which could be used to demonstrate the working of SparkFHE has been created
Future Work

• Adding the feature to submit jobs on cluster and fetch the result from cluster.
• Package and deploy the app to be downloadable.
• A framework has been set up where it would be easy to add more examples and operations available in the SparkFHE project like vector multiplication etc.
• More screens can be added on the application to incorporate more added operations and examples.
Thank You