DSAI 3202 – Parallel and distributed computing

Lab – 7: Distributed computing using Celery

# Objectives:

* Develop Python programs that run in a distributed fashion using celery.

# Tools and Concepts:

* Python: Programming language.
* Packages: celery, Redis, RabbitMQ.

# Exercises in conjunction with the lecture

## Power program

* In a file called tasks.py, create e function power that computes the power to n an integer m. The function should have a decorator @app.task.
* Create the file dispatch.py that:
  + dispatches the job to the workers in a loop.
  + Gather the results using redis.
* Start the RabbitMQ server.
* Start the redis server.
* Start celery and run the program.

## Add a second task:

* In a file called tasks.py, add a new task. This task is a function that takes an integer and returns if it is a prime otherwise it returns none.
* Edit dispatch.py to find all the prime numbers from 1 to 10000.
* Restart celery and run the program.

## Distribute the Program:

* Make this program run on multiple machines.
* Hints:
  + Only one machine should run as a server with RabbitMQ.
  + All machines must have tasks.py and dispatch.py at the same location.
  + Celery must be started from all machines prior to starting dispatch.py from one machine.