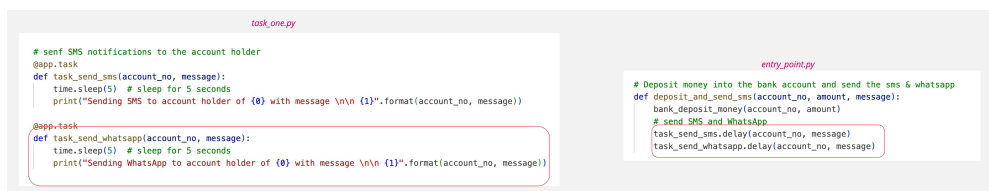


## Chapter - 2 : Parallel Processing with Celery

*By default celery is concurrency enabled and it created multiple workers simultaneously so that multiple tasks can be processed at the same time*

*we can see the same using top and/or htop commands*

*Let's see the concurrency in action by adding one more function to send the notification for whatsapp also*



SMS and WhatsApp

### Example : 1

*we can also setup the concurrency using the following command*

```
celery -A task_one worker --loglevel=INFO --concurrency=1
```

*Generally concurrency should correspond to the number of cores (Default behaviour), however, there is no “fit all formula” and we need to apply the best of our judgement based on the problem we’re solving*

*We can verify the concurrency behaviour by applying some sleep on the messages being sent and check it with concurrency value of 1 ,2 or even more*

```
celery -A task_one worker --loglevel=INFO --concurrency=1
```

```

app = Celery('cel_main', backend='rpc://', broker='pyamqp://')

# send SMS notifications to the account holder
@app.task
def task_send_sms(account_no, message):
    time.sleep(1)
    print("Sending SMS to account holder of {0} with message \n\n {1}".
          format(account_no, message))

@app.task
def task_send_whatsapp(account_no, message):
    time.sleep(5)
    print("Sending WhatsApp to account holder of {0} with message \n\n {1}".
          format(account_no, message))

```

With Single Worker

## Example : 2

*Celery workers are generally limited by the number of file descriptors, if the limit is exhausted, you'll get an error*

OSError: [Errno 24] Too many open files

*You need to play with your ulimit values to get around this behaviour*

## Auto Scaling & De-Scaling

*It may be sometimes required to let celery auto scale instead of keeping lots of worker processes in the memory all the time, we don't need to eat the resources when they're not needed.*

*Here is the command to enable auto scaling while starting the celery*

```
celery -A task_one worker --autoscale=1,10
```

*The auto scale parameters are MIN and MAX number of workers*

## Example : 2 - With AutoScale Parameter