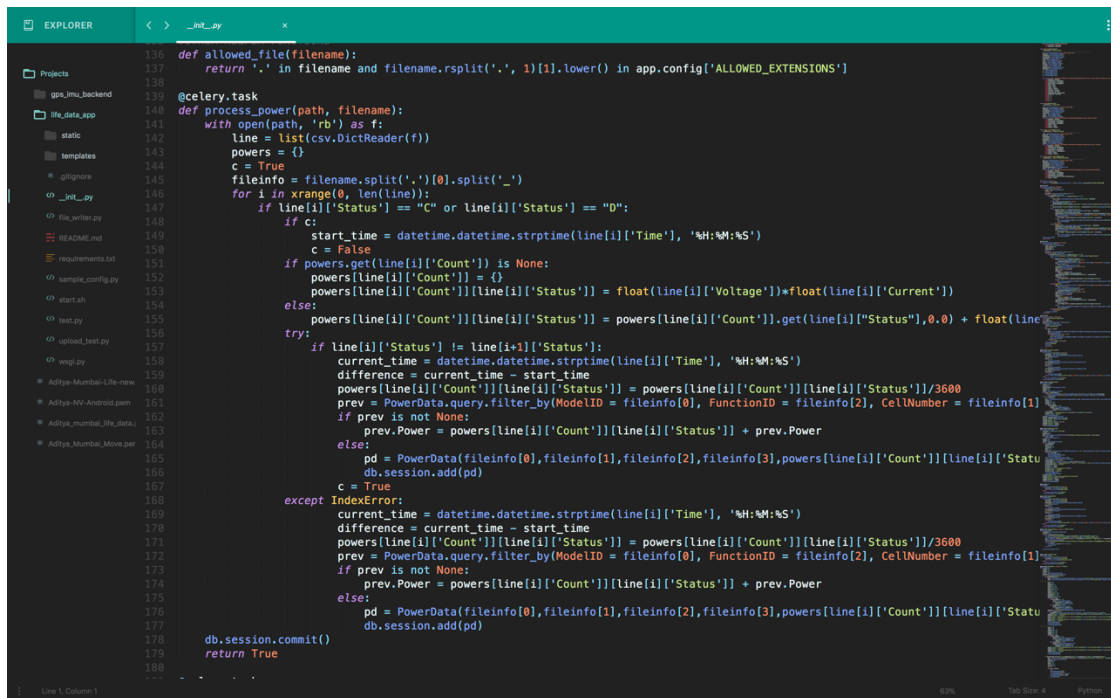
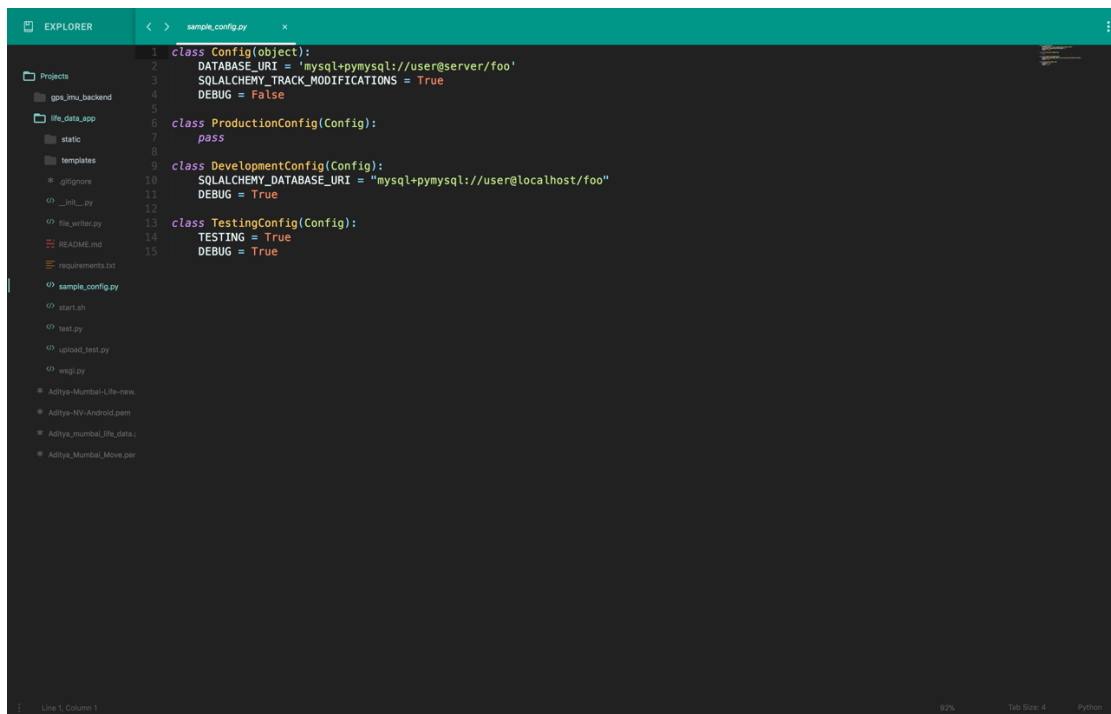


4.4 CODE SCREENSHOTS



```
136 def allowed_file(filename):
137     return '.' in filename and filename.rsplit('.', 1)[1].lower() in app.config['ALLOWED_EXTENSIONS']
138
139
140 @celery.task
141 def process_power(path, filename):
142     with open(path, 'rb') as f:
143         line = list(csv.DictReader(f))
144         powers = {}
145         c = True
146         fileinfo = filename.split('.')[0].split('_')
147         for i in xrange(0, len(line)):
148             if line[i]['Status'] == "C" or line[i]['Status'] == "D":
149                 if c:
150                     start_time = datetime.datetime.strptime(line[i]['Time'], '%H:%M:%S')
151                     c = False
152                 if powers.get(line[i]['Count']) is None:
153                     powers[line[i]['Count']] = {}
154                 powers[line[i]['Count']][line[i]['Status']] = float(line[i]['Voltage']) * float(line[i]['Current'])
155             else:
156                 powers[line[i]['Count']][line[i]['Status']] = powers[line[i]['Count']].get(line[i]['Status'], 0.0) + float(line[i]['Voltage']) * float(line[i]['Current'])
157             try:
158                 if line[i]['Status'] != line[i+1]['Status']:
159                     current_time = datetime.datetime.strptime(line[i+1]['Time'], '%H:%M:%S')
160                     difference = current_time - start_time
161                     powers[line[i]['Count']][line[i]['Status']] = powers[line[i]['Count']][line[i]['Status']] / 3600
162                     prev = PowerData.query.filter_by(ModelID = fileinfo[0], FunctionID = fileinfo[2], CellNumber = fileinfo[1])
163                     if prev is not None:
164                         prev.Power = powers[line[i]['Count']][line[i]['Status']] + prev.Power
165                     else:
166                         pd = PowerData(fileinfo[0], fileinfo[1], fileinfo[2], fileinfo[3], powers[line[i]['Count']][line[i]['Status']])
167                         db.session.add(pd)
168             except IndexError:
169                 current_time = datetime.datetime.strptime(line[i+1]['Time'], '%H:%M:%S')
170                 difference = current_time - start_time
171                 powers[line[i]['Count']][line[i]['Status']] = powers[line[i]['Count']][line[i]['Status']] / 3600
172                 prev = PowerData.query.filter_by(ModelID = fileinfo[0], FunctionID = fileinfo[2], CellNumber = fileinfo[1])
173                 if prev is not None:
174                     prev.Power = powers[line[i]['Count']][line[i]['Status']] + prev.Power
175                 else:
176                     pd = PowerData(fileinfo[0], fileinfo[1], fileinfo[2], fileinfo[3], powers[line[i]['Count']][line[i]['Status']])
177                     db.session.add(pd)
178             db.session.commit()
179             return True
180
```

Fig5. Asynchronous Task Using Celery



```
1 class Config(object):
2     DATABASE_URI = 'mysql+pymysql://user@server/foo'
3     SQLALCHEMY_TRACK_MODIFICATIONS = True
4     DEBUG = False
5
6 class ProductionConfig(Config):
7     pass
8
9 class DevelopmentConfig(Config):
10     SQLALCHEMY_DATABASE_URI = 'mysql+pymysql://user@localhost/foo'
11     DEBUG = True
12
13 class TestingConfig(Config):
14     TESTING = True
15     DEBUG = True

```

Fig6. Sample Configuration of the Application