

## APPENDIX

### COUNT THE DISTANCE PER CITY (GREEDY)

```
jarak=math.sqrt(((abs(y2-y1))**2)+((abs(x2-x1))**2))
jarak=round(jarak,2)
```

### COUNT THE GRAPH DISTANCE (GREEDY)

```
jumlahKota=len(kumpulanKota)
jg=[[0 for x in range(jumlahKota)] for y in range(jumlahKota)]
for i in range(jumlahKota):
    for j in range(jumlahKota):
        titik=ambilJarak(kumpulanKota[i][1],kumpulanKota[i][2],
            kumpulanKota[j][1], kumpulanKota[j][2])
        jg[i][j]=titik
    return jg
```

### COUNT THE GREEDY METHOD

```
rute=[]
jarak1=jarakGrafik2
totalJarak=0
tk=titikKota
for j in jarak1:
    j[tk]=0
    rute.append(tk)
    j1=len(jarak1)
    for e in range(j1,1,-1):
        jarakMin = min(1 for l in jarak1[tk] if l>0)
        totalJarak=totalJarak+jarakMin
        yes=jarak1[tk].index(jarakMin)
        if yes not in rute:
            rute.append(yes)
        for nope in jarak1:
            nope[yes]=0
            tk=yes
    return ([rute, totalJarak, yes])
```

### COUNT THE DISTANCE PER CITY (GENETIC)

```
xJarak=abs(self.getX()-kota.getX())
yJarak=abs(self.getY()-kota.getY())
jarak=math.sqrt((xJarak*xJarak)+(yJarak*yJarak))
return jarak
```

### COUNT THE FITNESS OF EACH ROUTE (GENETIC)

```
hasilterbaik=self.travels[0]
for i in range(0, self.ukuranPopulasi()):
    if
hasilterbaik.ambilFitness()<=self.ambilTravel(i).ambilFitness():
    hasilterbaik = self.ambilTravel(i)
return hasilterbaik
```

**SET THE POPULATION (GENETIC)**

```

self.travels=[]
for i in range(0, ukuranPopulasi):
    self.travels.append(None)
    if initialise:
        for i in range(0, ukuranPopulasi):
            travelBaru=Travel(kelilingkota)
            travelBaru.bikinIndividual()
            self.saveTravel(i, travelBaru)

```

**DETERMINE CROSSOVER**

```

anak=Travel(self.kelilingkota)
awal=int(random.random()*induk1.besarTravel())
akhir=int(random.random()*induk2.besarTravel())
for i in range(0, anak.besarTravel()):
    if awal<akhir and i>awal and i<akhir:
        anak.aturKota(i, induk1.ambilKota(i))
    elif awal>akhir:
        if not (i<awal and i>akhir):
            anak.aturKota(i, induk1.ambilKota(i))
for i in range(0, induk2.besarTravel()):
    if not anak.isinyaKota(induk2.ambilKota(i)):
        for ii in range(0, anak.besarTravel()):
            if anak.ambilKota(ii)==None:
                anak.aturKota(ii, induk2.ambilKota(i))
                break
return anak

```

**DETERMINE MUTATION**

```

for travel1 in range(0, travel.besarTravel()):
    if random.random()<self.ukuranMutasi:
        travel2=int(travel.besarTravel()*random.random())
        kota1=travel.ambilKota(travel1)
        kota2=travel.ambilKota(travel2)
        travel.aturKota(travel2, kota1)
        travel.aturKota(travel1, kota2)

```



**1.11%** PLAGIARISM  
APPROXIMATELY

## Report #10947404

IntroductionBackgroundNowadays, Indonesia is attacked by a virus called Corona Virus or Covid-19. This condition is called a pandemic. Almost every area in Indonesia was attacked and infected by this virus. Semarang is one of them. The Semarang city government urges the Semarang people to always be at home when the pandemic is still ongoing, or can be called "lockdown". Semarang residents are advised not to go outside to the mall, or hang out to a crowded place, and also always wear a mask if necessary to go outside. Always maintain personal hygiene, by always washing hands using water and soap or using disinfecting water. The Semarang city government plans to spray disinfectants in various areas in Semarang by directing members of the Polrestabes. In this case, Polrestabes also needs the fastest route so that it can be done in a short time. In this case, not all existing algorithms can provide optimal results to solve cases. Because in one case with another case, each algorithm has its own results. And each of these algorithms has advantages and disadvantages in completing optimization results in the shortest route search. In this analysis, two algorithms will be used for comparison, namely the Greedy algorithm and the Genetic algorithm. There are 70 locations that are going to be passed by the spray trucks owned by Semarang Polrestabes. The Greedy

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