Driver Order Assignment and Routes

Variation 1: A driver can only take one order at a time

Objective Cost: \$819404 ______ Route for driver 0: Driver_0_Start Time(0,0) -> order_id_71_pickup Time(480,480) -> order_id_71_drop Time(1194,1194) -> order_id_28_pickup Time(1332,1332) -> order_id_28_drop Time(2338,2338) -> order_id_78_pickup Time(2487,2487) -> order_id_78_drop Time(3419,3419) -> Route_END Time(3419,3419) Time of the route: 3419 seconds Cost of the route: \$14409 Distance of the route: 13303 meters Delay of the route: 1106 seconds ______ Route for driver 1: Driver_1_Start Time(0,0) -> order_id_13_pickup Time(360,360) -> order_id_13_drop Time(1580,1580) -> order_id_77_pickup Time(1749,1749) -> order_id_77_drop Time(2867,2867) -> Route_END Time(2867,2867) Time of the route: 2867 seconds Cost of the route: \$11147 Distance of the route: 10680 meters Delay of the route: 467 seconds ______ Route for driver 2: Driver_2_Start Time(0,0) -> order_id_66_pickup Time(420,420) -> order_id_66_drop Time(1380,1380) -> order_id_53_pickup Time(1736,1736) -> order_id_53_drop Time(2636,2636) ->

Route_END Time(2636,2636)

Time of the route: 2636 seconds

Cost of the route: \$10441

Distance of the route: 10205 meters

Delay of the route: 236 seconds

Route for driver 3:

Driver_3_Start Time(0,0) -> order_id_62_pickup Time(540,985) -> order_id_62_drop Time(627,1072) -> order_id_24_pickup Time(1200,1200) -> order_id_24_drop Time(1620,1620) -> order_id_95_pickup Time(1744,1744) -> order_id_95_drop Time(2494,2494) -> order_id_92_pickup Time(2664,2664) -> order_id_92_drop Time(4286,4286) -> Route_END Time(4286,4286)

Time of the route: 4286 seconds

Cost of the route: \$16772

Distance of the route: 14528 meters

Delay of the route: 2244 seconds

Route for driver 4:

Driver_4_Start Time(0,0) -> order_id_73_pickup Time(480,480) -> order_id_73_drop
Time(1149,1149) -> order_id_19_pickup Time(1217,1217) -> order_id_19_drop Time(2043,2043) -> order_id_90_pickup Time(2142,2142) -> order_id_90_drop Time(3068,3068) -> Route_END
Time(3068,3068)

Time of the route: 3068 seconds

Cost of the route: \$13140

Distance of the route: 12472 meters

Delay of the route: 668 seconds

Route for driver 5:

 $\label{lem:continuous} \begin{tabular}{ll} Driver_5_Start\ Time(0,0) -> order_id_30_pickup\ Time(420,420) -> order_id_30_drop \\ Time(1263,1263) -> order_id_21_pickup\ Time(1339,1339) -> order_id_21_drop\ Time(2443,2443) -> order_id_99_pickup\ Time(2671,2671) -> order_id_99_drop\ Time(3540,3540) -> Route_END\ Time(3540,3540) \\ \end{tabular}$

Time of the route: 3540 seconds

Cost of the route: \$15074

Distance of the route: 13620 meters

Delay of the route: 1454 seconds

Route for driver 6:

Driver_6_Start Time(0,0) -> order_id_39_pickup Time(360,360) -> order_id_39_drop Time(772,772) -> order_id_65_pickup Time(991,991) -> order_id_65_drop Time(2317,2317) -> order_id_93_pickup Time(2392,2392) -> order_id_93_drop Time(3549,3549) -> Route_END Time(3549,3549)

Time of the route: 3549 seconds

Cost of the route: \$15071

Distance of the route: 13922 meters

Delay of the route: 1149 seconds

Route for driver 7:

 $\label{lem:continuous} \begin{tabular}{ll} Driver_7_Start\ Time(0,0) -> order_id_50_pickup\ Time(780,780) -> order_id_50_drop \\ Time(1226,1226) -> order_id_46_pickup\ Time(1460,1460) -> order_id_46_drop\ Time(2726,2726) -> order_id_16_pickup\ Time(2828,2828) -> order_id_16_drop\ Time(3907,3907) -> Route_END \\ Time(3907,3907) \\ \end{tabular}$

Time of the route: 3907 seconds

Cost of the route: \$15749

Distance of the route: 13488 meters

Delay of the route: 2261 seconds

Route for driver 8:

Driver_8_Start Time(0,0) -> order_id_80_pickup Time(780,780) -> order_id_80_drop Time(2112,2112) -> order_id_22_pickup Time(2354,2354) -> order_id_22_drop Time(3563,3563) -> Route_END Time(3563,3563)

Time of the route: 3563 seconds

Cost of the route: \$13991

Distance of the route: 12828 meters

Delay of the route: 1163 seconds

Route for driver 9:

$$\label{lem:condition} \begin{split} & \text{Driver_9_Start Time}(0,0) \text{ -> order_id_58_pickup Time}(1200,1200) \text{ -> order_id_58_drop} \\ & \text{Time}(2423,2423) \text{ -> order_id_0_pickup Time}(2731,2731) \text{ -> order_id_0_drop Time}(3211,3211) \text{ -> } \\ & \text{Route_END Time}(3211,3211) \end{split}$$

Time of the route: 3211 seconds

Distance of the route: 9093 meters

Delay of the route: 1165 seconds

Route for driver 10:

Driver_10_Start Time(0,0) -> order_id_20_pickup Time(420,420) -> order_id_20_drop Time(867,867) -> order_id_5_pickup Time(923,923) -> order_id_5_drop Time(1740,1740) -> order_id_43_pickup Time(1879,1879) -> order_id_43_drop Time(2304,2304) -> Route_END Time(2304,2304)

Time of the route: 2304 seconds

Cost of the route: \$9153

Distance of the route: 9153 meters

Delay of the route: 0 seconds

Route for driver 11:

 $\label{lem:continuous} \begin{tabular}{ll} Driver_11_Start\ Time(0,0) -> order_id_81_pickup\ Time(780,780) -> order_id_81_drop \\ Time(1724,1724) -> order_id_88_pickup\ Time(1747,1747) -> order_id_88_drop\ Time(3059,3059) -> order_id_6_pickup\ Time(3145,3145) -> order_id_6_drop\ Time(4572,4572) -> Route_END \\ Time(4572,4572) \\ \hline \end{tabular}$

Time of the route: 4572 seconds

Cost of the route: \$19988

Distance of the route: 16412 meters

Delay of the route: 3576 seconds

Route for driver 12:

Driver_12_Start Time(0,0) -> order_id_54_pickup Time(540,540) -> order_id_54_drop
Time(1428,1428) -> order_id_38_pickup Time(1798,1798) -> order_id_38_drop Time(2512,2512) ->
order_id_42_pickup Time(2553,2553) -> order_id_42_drop Time(3577,3577) -> Route_END
Time(3577,3577)

Time of the route: 3577 seconds

Cost of the route: \$15664

Distance of the route: 14222 meters

Delay of the route: 1442 seconds

Route for driver 13:

Driver_13_Start Time(0,0) -> order_id_35_pickup Time(1020,1020) -> order_id_35_drop Time(2246,2246) -> Route END Time(2246,2246)

Time of the route: 2246 seconds

Cost of the route: \$5796

Distance of the route: 5796 meters

Delay of the route: 0 seconds

Route for driver 14:

Driver_14_Start Time(0,0) -> order_id_79_pickup Time(720,720) -> order_id_79_drop
Time(1916,1916) -> order_id_41_pickup Time(2062,2062) -> order_id_41_drop Time(2285,2285) ->
order_id_63_pickup Time(2430,2430) -> order_id_63_drop Time(4026,4026) -> Route_END
Time(4026,4026)

Time of the route: 4026 seconds

Cost of the route: \$16212

Distance of the route: 14556 meters

Delay of the route: 1656 seconds

Route for driver 15:

Driver_15_Start Time(0,0) -> order_id_34_pickup Time(406,406) -> order_id_34_drop Time(1839,1839) -> order_id_9_pickup Time(2006,2006) -> order_id_9_drop Time(2375,2375) -> order_id_31_pickup Time(2408,2408) -> order_id_31_drop Time(3988,3988) -> Route_END Time(3988,3988)

Time of the route: 3988 seconds

Cost of the route: \$18210

Distance of the route: 16614 meters

Delay of the route: 1596 seconds

Route for driver 16:

Driver_16_Start Time(0,0) -> order_id_45_pickup Time(360,360) -> order_id_45_drop Time(871,871) -> order_id_74_pickup Time(1143,1143) -> order_id_74_drop Time(2155,2155) -> order_id_56_pickup Time(2256,2256) -> order_id_56_drop Time(3468,3468) -> Route_END Time(3468,3468)

Time of the route: 3468 seconds

Distance of the route: 14060 meters

Delay of the route: 1068 seconds

Route for driver 17:

Driver_17_Start Time(0,0) -> order_id_72_pickup Time(420,420) -> order_id_72_drop Time(1228,1228) -> order_id_67_pickup Time(1422,1422) -> order_id_67_drop Time(3168,3168) -> Route_END Time(3168,3168)

Time of the route: 3168 seconds

Cost of the route: \$13672

Distance of the route: 12904 meters

Delay of the route: 768 seconds

Route for driver 18:

$$\label{lem:condition} \begin{split} &\text{Driver_18_Start Time}(0,0) \text{ -> order_id_60_pickup Time}(600,600) \text{ -> order_id_60_drop} \\ &\text{Time}(1409,1409) \text{ -> order_id_27_pickup Time}(1605,1605) \text{ -> order_id_27_drop Time}(2291,2291) \text{ -> order_id_14_pickup Time}(2642,2642) \text{ -> order_id_14_drop Time}(4043,4043) \text{ -> Route_END} \\ &\text{Time}(4043,4043) \end{split}$$

Time of the route: 4043 seconds

Cost of the route: \$17259

Distance of the route: 15374 meters

Delay of the route: 1885 seconds

Route for driver 19:

$$\label{lem:condition} \begin{split} &\text{Driver_19_Start Time}(0,0) \text{ -> order_id_89_pickup Time}(540,540) \text{ -> order_id_89_drop} \\ &\text{Time}(1511,1511) \text{ -> order_id_36_pickup Time}(1978,1978) \text{ -> order_id_36_drop Time}(2322,2322) \text{ -> order_id_26_pickup Time}(2647,2647) \text{ -> order_id_26_drop Time}(3485,3485) \text{ -> Route_END} \\ &\text{Time}(3485,3485) \end{split}$$

Time of the route: 3485 seconds

Cost of the route: \$13949

Distance of the route: 12617 meters

Delay of the route: 1332 seconds

Route for driver 20:

Driver_20_Start Time(0,0) -> order_id_61_pickup Time(660,660) -> order_id_61_drop Time(978,978) -> Route END Time(978,978)

Time of the route: 978 seconds

Cost of the route: \$11349

Distance of the route: 3783 meters

Delay of the route: 0 seconds

Route for driver 21:

Driver_21_Start Time(0,0) -> order_id_76_pickup Time(540,540) -> order_id_76_drop Time(948,948) -> Route_END Time(948,948)

Time of the route: 948 seconds

Cost of the route: \$10878

Distance of the route: 3626 meters

Delay of the route: 0 seconds

Route for driver 22:

Driver_22_Start Time(0,0) -> order_id_51_pickup Time(780,780) -> order_id_51_drop
Time(1517,1517) -> order_id_69_pickup Time(1558,1558) -> order_id_69_drop Time(1904,1904) ->
order_id_11_pickup Time(1982,1982) -> order_id_11_drop Time(2185,2185) -> Route_END
Time(2185,2185)

Time of the route: 2185 seconds

Cost of the route: \$36078

Distance of the route: 12026 meters

Delay of the route: 0 seconds

Route for driver 23:

Driver_23_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 24:

Driver_24_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 25:

Driver_25_Start Time(0,0) -> order_id_82_pickup Time(720,720) -> order_id_82_drop Time(1017,1017) -> Route_END Time(1017,1017)

Time of the route: 1017 seconds

Cost of the route: \$8151

Distance of the route: 2717 meters

Delay of the route: 0 seconds

Route for driver 26:

Driver_26_Start Time(0,0) -> order_id_4_pickup Time(360,360) -> order_id_4_drop Time(461,461) -> order_id_59_pickup Time(505,505) -> order_id_59_drop Time(905,905) -> order_id_2_pickup Time(1015,1015) -> order_id_2_drop Time(1757,1757) -> order_id_1_pickup Time(1766,1766) -> order_id_1_drop Time(1961,1961) -> order_id_44_pickup Time(1989,1989) -> order_id_44_drop Time(2476,2476) -> order_id_68_pickup Time(2562,2562) -> order_id_68_drop Time(2812,2812) -> Route_END Time(2812,2812)

Time of the route: 2812 seconds

Cost of the route: \$64466

Distance of the route: 21272 meters

Delay of the route: 650 seconds

Route for driver 27:

 $\label{limit} Driver_27_Start\ Time(0,0) -> order_id_8_pickup\ Time(480,480) -> order_id_8_drop\ Time(721,721) -> order_id_49_pickup\ Time(845,845) -> order_id_49_drop\ Time(1319,1319) -> Route_END\ Time(1319,1319)$

Time of the route: 1319 seconds

Cost of the route: \$21717

Distance of the route: 7239 meters

Delay of the route: 0 seconds

Route for driver 28:

Driver_28_Start Time(0,0) -> order_id_83_pickup Time(780,780) -> order_id_83_drop Time(1291,1291) -> order_id_48_pickup Time(1408,1408) -> order_id_48_drop Time(1775,1775) -> Route END Time(1775,1775)

Time of the route: 1775 seconds

Cost of the route: \$27348

Distance of the route: 9116 meters

Delay of the route: 0 seconds

Route for driver 29:

Driver_29_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 30:

 $\label{eq:continuous} \begin{tabular}{ll} Driver_30_Start\ Time(0,0) -> order_id_52_pickup\ Time(840,840) -> order_id_52_drop\ Time(900,900) -> order_id_29_pickup\ Time(968,968) -> order_id_29_drop\ Time(1348,1348) -> order_id_15_pickup\ Time(1513,1513) -> order_id_15_drop\ Time(2153,2153) -> Route_END\ Time(2153,2153) \\ \end{tabular}$

Time of the route: 2153 seconds

Cost of the route: \$34344

Distance of the route: 11448 meters

Delay of the route: 0 seconds

Route for driver 31:

$$\label{lem:condition} \begin{split} &\text{Driver_31_Start Time}(0,0) \text{ -> order_id_91_pickup Time}(1140,1140) \text{ -> order_id_91_drop} \\ &\text{Time}(1209,1209) \text{ -> order_id_12_pickup Time}(1288,1288) \text{ -> order_id_12_drop Time}(1858,1858) \text{ -> order_id_7_pickup Time}(1972,1972) \text{ -> order_id_7_drop Time}(2021,2021) \text{ -> order_id_17_pickup} \\ &\text{Time}(2058,2058) \text{ -> order_id_17_drop Time}(2800,2800) \text{ -> Route_END Time}(2800,2800) \end{split}$$

Time of the route: 2800 seconds

Distance of the route: 14489 meters

Delay of the route: 400 seconds

Route for driver 32:

Driver_32_Start Time(0,0) -> order_id_84_pickup Time(600,807) -> order_id_84_drop Time(661,868) -> order_id_10_pickup Time(900,900) -> order_id_10_drop Time(1356,1356) -> order_id_47_pickup Time(1466,1466) -> order_id_47_drop Time(2348,2348) -> Route_END Time(2348,2348)

Time of the route: 2348 seconds

Cost of the route: \$39462

Distance of the route: 13154 meters

Delay of the route: 0 seconds

Route for driver 33:

Driver_33_Start Time(0,0) -> order_id_40_pickup Time(540,540) -> order_id_40_drop Time(974,974) -> Route END Time(974,974)

Time of the route: 974 seconds

Cost of the route: \$11286

Distance of the route: 3762 meters

Delay of the route: 0 seconds

Route for driver 34:

Driver_34_Start Time(0,0) -> order_id_98_pickup Time(480,480) -> order_id_98_drop Time(758,758) -> order_id_33_pickup Time(846,846) -> order_id_33_drop Time(1370,1370) -> order_id_87_pickup Time(1515,1515) -> order_id_87_drop Time(2319,2319) -> order_id_57_pickup Time(2404,2404) -> order_id_57_drop Time(3105,3105) -> Route_END Time(3105,3105)

Time of the route: 3105 seconds

Cost of the route: \$67690

Distance of the route: 22327 meters

Delay of the route: 709 seconds

Route for driver 35:

 order_id_18_pickup Time(1751,1751) -> order_id_18_drop Time(2034,2034) -> order_id_3_pickup Time(2113,2113) -> order_id_3_drop Time(2433,2433) -> Route_END Time(2433,2433)

Time of the route: 2433 seconds

Cost of the route: \$44205

Distance of the route: 14724 meters

Delay of the route: 33 seconds

Route for driver 36:

Driver_36_Start Time(0,0) -> order_id_96_pickup Time(780,780) -> order_id_96_drop Time(805,805) -> order_id_55_pickup Time(845,845) -> order_id_55_drop Time(1122,1122) -> order_id_23_pickup Time(1173,1173) -> order_id_23_drop Time(1473,1473) -> Route_END Time(1473,1473)

Time of the route: 1473 seconds

Cost of the route: \$17505

Distance of the route: 5835 meters

Delay of the route: 0 seconds

Route for driver 37:

Driver_37_Start Time(0,0) -> order_id_85_pickup Time(960,960) -> order_id_85_drop Time(1472,1472) -> order_id_94_pickup Time(1529,1529) -> order_id_94_drop Time(2267,2267) -> order_id_25_pickup Time(2307,2307) -> order_id_25_drop Time(3057,3057) -> Route_END Time(3057,3057)

Time of the route: 3057 seconds

Cost of the route: \$56370

Distance of the route: 18571 meters

Delay of the route: 657 seconds

Route for driver 38:

Driver_38_Start Time(0,0) -> order_id_86_pickup Time(600,716) -> order_id_86_drop Time(652,768) -> order_id_32_pickup Time(780,780) -> order_id_32_drop Time(944,944) -> order_id_37_pickup Time(1017,1017) -> order_id_37_drop Time(1359,1359) -> order_id_97_pickup Time(1453,1453) -> order_id_97_drop Time(1884,1884) -> order_id_75_pickup Time(1933,1933) -> order_id_75_drop Time(2454,2454) -> Route END Time(2454,2454)

Time of the route: 2454 seconds

Distance of the route: 14517 meters

Delay of the route: 54 seconds

Route for driver 39:

Driver_39_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route Metrics:

Maximum of the route costs: \$67690

Total route cost: \$819404

Total route time: 100754 seconds

Total route distance: 434453 meters

Total route delay: 27739 seconds

Variation 2: A driver can combine orders

Objective Cost: \$636478

Route for driver 0:

$$\label{lem:condition} \begin{split} & \text{Driver_0_Start Time}(0,0) \text{ -> order_id_88_pickup Time}(1080,1080) \text{ -> order_id_26_pickup} \\ & \text{Time}(1308,1308) \text{ -> order_id_26_drop Time}(2146,2146) \text{ -> order_id_16_pickup Time}(2368,2368) \text{ -> order_id_88_drop Time}(2405,2405) \text{ -> order_id_16_drop Time}(3513,3513) \text{ -> Route_END} \\ & \text{Time}(3513,3513) \end{split}$$

Time of the route: 3513 seconds

Cost of the route: \$11810

Distance of the route: 10692 meters

Delay of the route: 1118 seconds

Route for driver 1:

Driver_1_Start Time(0,0) -> order_id_13_pickup Time(360,360) -> order_id_20_pickup Time(827,827) -> order_id_79_pickup Time(923,923) -> order_id_20_drop Time(1287,1287) -> order_id_13_drop Time(1815,1815) -> order_id_79_drop Time(2316,2316) -> Route_END Time(2316,2316)

Time of the route: 2316 seconds

Cost of the route: \$8381

Distance of the route: 8381 meters

Delay of the route: 0 seconds

Route for driver 2:

Driver_2_Start Time(0,0) -> order_id_66_pickup Time(420,1074) -> order_id_58_pickup Time(1200,1200) -> order_id_66_drop Time(2079,2079) -> order_id_46_pickup Time(2316,2316) -> order_id_58_drop Time(3020,3020) -> order_id_46_drop Time(3585,3585) -> Route_END Time(3585,3585)

Time of the route: 3585 seconds

Cost of the route: \$13247

Distance of the route: 11442 meters

Delay of the route: 1805 seconds

Route for driver 3:

Driver_3_Start Time(0,0) -> order_id_42_pickup Time(420,420) -> order_id_45_pickup Time(833,833) -> order_id_45_drop Time(1344,1344) -> order_id_42_drop Time(1593,1593) -> order_id_60_pickup Time(1785,1785) -> order_id_60_drop Time(2594,2594) -> Route_END Time(2594,2594)

Time of the route: 2594 seconds

Cost of the route: \$9897

Distance of the route: 9703 meters

Delay of the route: 194 seconds

Route for driver 4:

$$\label{lem:condition} \begin{split} & \text{Driver_4_Start Time}(0,0) \text{ -> order_id_21_pickup Time}(960,960) \text{ -> order_id_21_drop} \\ & \text{Time}(2064,2064) \text{ -> order_id_92_pickup Time}(2162,2162) \text{ -> order_id_92_drop Time}(3784,3784) \text{ -> } \\ & \text{Route_END Time}(3784,3784) \end{split}$$

Time of the route: 3784 seconds

Cost of the route: \$14096

Distance of the route: 12712 meters

Delay of the route: 1384 seconds

Route for driver 5:

Driver_5_Start Time(0,0) -> order_id_5_pickup Time(840,961) -> order_id_95_pickup Time(1140,1140) -> order_id_95_drop Time(1890,1890) -> order_id_99_pickup Time(2271,2271) -> order_id_5_drop Time(2453,2453) -> order_id_90_pickup Time(2527,2527) -> order_id_99_drop Time(3223,3223) -> order_id_90_drop Time(3504,3504) -> Route END Time(3504,3504)

Time of the route: 3504 seconds

Cost of the route: \$13313

Distance of the route: 11206 meters

Delay of the route: 2107 seconds

Route for driver 6:

Driver_6_Start Time(0,0) -> order_id_67_pickup Time(480,526) -> order_id_24_pickup Time(1200,1200) -> order_id_24_drop Time(1620,1620) -> order_id_67_drop Time(2297,2297) -> Route END Time(2297,2297)

Time of the route: 2297 seconds

Cost of the route: \$8277

Distance of the route: 8277 meters

Delay of the route: 0 seconds

Route for driver 7:

 $\label{eq:condition} \begin{tabular}{ll} Driver_7_Start\ Time(0,0) -> order_id_0_pickup\ Time(960,960) -> order_id_0_drop\ Time(1440,1440) -> order_id_77_pickup\ Time(1806,1806) -> order_id_77_drop\ Time(2924,2924) -> Route_END\ Time(2924,2924) \\ \end{tabular}$

Time of the route: 2924 seconds

Cost of the route: \$9491

Distance of the route: 8967 meters

Delay of the route: 524 seconds

Route for driver 8:

Driver_8_Start Time(0,0) -> order_id_6_pickup Time(1020,1020) -> order_id_6_drop Time(2447,2447) -> Route_END Time(2447,2447)

Time of the route: 2447 seconds

Cost of the route: \$7260

Distance of the route: 7213 meters

Delay of the route: 47 seconds

Route for driver 9:

Time of the route: 2349 seconds

Cost of the route: \$7966

Distance of the route: 7966 meters

Delay of the route: 0 seconds

Route for driver 10:

Driver_10_Start Time(0,0) -> order_id_73_pickup Time(480,480) -> order_id_73_drop
Time(1149,1149) -> order_id_19_pickup Time(1217,1217) -> order_id_19_drop Time(2043,2043) ->
order_id_38_pickup Time(2393,2393) -> order_id_38_drop Time(3107,3107) -> Route_END
Time(3107,3107)

Time of the route: 3107 seconds

Cost of the route: \$12698

Distance of the route: 11991 meters

Delay of the route: 707 seconds

Route for driver 11:

 $\label{lem:continuous} \begin{tabular}{ll} Driver_11_Start\ Time(0,0) -> order_id_54_pickup\ Time(540,653) -> order_id_41_pickup\ Time(1140,1140) -> order_id_41_drop\ Time(1363,1363) -> order_id_63_pickup\ Time(1508,1508) -> order_id_54_drop\ Time(2663,2663) -> order_id_63_drop\ Time(3156,3156) -> Route_END\ Time(3156,3156) \\ \end{tabular}$

Time of the route: 3156 seconds

Cost of the route: \$12538

Distance of the route: 11519 meters

Delay of the route: 1019 seconds

Route for driver 12:

Driver_12_Start Time(0,0) -> order_id_31_pickup Time(780,780) -> order_id_27_pickup Time(1125,1125) -> order_id_27_drop Time(1811,1811) -> order_id_31_drop Time(2871,2871) -> Route_END Time(2871,2871)

Time of the route: 2871 seconds

Cost of the route: \$9539

Distance of the route: 9068 meters

Delay of the route: 471 seconds

Route for driver 13:

Driver_13_Start Time(0,0) -> order_id_35_pickup Time(1020,1020) -> order_id_35_drop Time(2246,2246) -> Route_END Time(2246,2246)

Time of the route: 2246 seconds

Cost of the route: \$5796

Distance of the route: 5796 meters

Delay of the route: 0 seconds

Route for driver 14:

Driver_14_Start Time(0,0) -> order_id_56_pickup Time(960,960) -> order_id_72_pickup Time(1956,1956) -> order_id_56_drop Time(2464,2464) -> order_id_72_drop Time(2800,2800) -> Route_END Time(2800,2800)

Time of the route: 2800 seconds

Cost of the route: \$10755

Distance of the route: 10291 meters

Delay of the route: 464 seconds

Route for driver 15:

Driver_15_Start Time(0,0) -> order_id_93_pickup Time(1080,1080) -> order_id_93_drop Time(2237,2237) -> order_id_80_pickup Time(2271,2271) -> order_id_80_drop Time(3603,3603) -> Route_END Time(3603,3603)

Time of the route: 3603 seconds

Cost of the route: \$12995

Distance of the route: 11792 meters

Delay of the route: 1203 seconds

Route for driver 16:

 $\label{lem:continuous} \begin{tabular}{ll} Driver_16_Start\ Time(0,0) -> order_id_89_pickup\ Time(540,587) -> order_id_81_pickup\ Time(780,780) -> order_id_81_drop\ Time(1724,1724) -> order_id_89_drop\ Time(1960,1960) -> order_id_1_pickup\ Time(1993,1993) -> order_id_1_drop\ Time(2383,2383) -> Route_END\ Time(2383,2383) \\ \end{tabular}$

Time of the route: 2383 seconds

Cost of the route: \$8098

Distance of the route: 8098 meters

Delay of the route: 0 seconds

Route for driver 17:

Driver_17_Start Time(0,0) -> order_id_74_pickup Time(720,720) -> order_id_74_drop Time(1732,1732) -> order_id_34_pickup Time(1836,1836) -> order_id_34_drop Time(3269,3269) -> Route_END Time(3269,3269)

Time of the route: 3269 seconds

Cost of the route: \$13851

Distance of the route: 12982 meters

Delay of the route: 869 seconds

Route for driver 18:

 $\label{limits} \begin{tabular}{ll} Driver_18_Start\ Time(0,0) -> order_id_14_pickup\ Time(300,300) -> order_id_30_pickup\ Time(805,805) -> order_id_30_drop\ Time(1648,1648) -> order_id_14_drop\ Time(2055,2055) -> Route_END\ Time(2055,2055) \end{tabular}$

Time of the route: 2055 seconds

Cost of the route: \$8547

Distance of the route: 8547 meters

Delay of the route: 0 seconds

Route for driver 19:

Driver_19_Start Time(0,0) -> order_id_9_pickup Time(1080,1080) -> order_id_9_drop Time(1449,1449) -> order_id_53_pickup Time(1675,1675) -> order_id_53_drop Time(2575,2575) -> Route_END Time(2575,2575)

Time of the route: 2575 seconds

Cost of the route: \$7587

Distance of the route: 7412 meters

Delay of the route: 175 seconds

Route for driver 20:

Driver_20_Start Time(0,0) -> order_id_64_pickup Time(660,899) -> order_id_64_drop
Time(913,1152) -> order_id_18_pickup Time(1200,1200) -> order_id_97_pickup Time(1302,1302) ->
order_id_18_drop Time(1550,1550) -> order_id_97_drop Time(1737,1737) -> order_id_75_pickup
Time(1786,1786) -> order_id_57_pickup Time(1858,1858) -> order_id_75_drop Time(2414,2414) ->
order_id_57_drop Time(2719,2719) -> Route_END Time(2719,2719)

Time of the route: 2719 seconds

Cost of the route: \$53889

Distance of the route: 17852 meters

Delay of the route: 333 seconds

Route for driver 21:

Driver_21_Start Time(0,0) -> order_id_28_pickup Time(1200,1200) -> order_id_76_pickup Time(1241,1241) -> order_id_52_pickup Time(1347,1347) -> order_id_52_drop Time(1407,1407) -> order_id_29_pickup Time(1475,1475) -> order_id_76_drop Time(1688,1688) -> order_id_28_drop Time(1895,1895) -> order_id_29_drop Time(1949,1949) -> Route_END Time(1949,1949)

Time of the route: 1949 seconds

Cost of the route: \$19137

Distance of the route: 6379 meters

Delay of the route: 0 seconds

Route for driver 22:

 $\label{limited_points} \begin{tabular}{ll} Driver_22_Start\ Time(0,0) -> order_id_94_pickup\ Time(960,960) -> order_id_17_pickup\ Time(1116,1116) -> order_id_65_pickup\ Time(1348,1348) -> order_id_94_drop\ Time(1867,1867) -> order_id_17_drop\ Time(2023,2023) -> order_id_69_pickup\ Time(2072,2072) -> order_id_43_pickup\ Time(2133,2133) -> order_id_65_drop\ Time(2217,2217) -> order_id_43_drop\ Time(2391,2391) -> order_id_69_drop\ Time(2509,2509) -> Route_END\ Time(2509,2509) \\ \end{tabular}$

Time of the route: 2509 seconds

Cost of the route: \$39796

Distance of the route: 13229 meters

Delay of the route: 109 seconds

Route for driver 23:

Driver_23_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 24:

Driver_24_Start Time(0,0) -> order_id_37_pickup Time(660,852) -> order_id_68_pickup Time(960,960) -> order_id_68_drop Time(1210,1210) -> order_id_78_pickup Time(1343,1343) -> order_id_37_drop Time(1525,1525) -> order_id_15_pickup Time(1612,1612) -> order_id_78_drop Time(1959,1959) -> order_id_15_drop Time(2259,2259) -> Route_END Time(2259,2259)

Time of the route: 2259 seconds

Cost of the route: \$37218

Distance of the route: 12406 meters

Delay of the route: 0 seconds

Route for driver 25:

Driver_25_Start Time(0,0) -> order_id_82_pickup Time(720,720) -> order_id_82_drop Time(1017,1017) -> Route_END Time(1017,1017)

Time of the route: 1017 seconds

Cost of the route: \$8151

Distance of the route: 2717 meters

Delay of the route: 0 seconds

Route for driver 26:

Driver_26_Start Time(0,0) -> order_id_4_pickup Time(360,603) -> order_id_4_drop Time(461,704) -> order_id_59_pickup Time(505,748) -> order_id_7_pickup Time(840,840) -> order_id_7_drop Time(889,889) -> order_id_47_pickup Time(998,998) -> order_id_59_drop Time(1187,1187) -> order_id_40_pickup Time(1386,1386) -> order_id_40_drop Time(1820,1820) -> order_id_47_drop Time(2048,2048) -> Route END Time(2048,2048)

Time of the route: 2048 seconds

Cost of the route: \$38664

Distance of the route: 12888 meters

Delay of the route: 0 seconds

Route for driver 27:

Driver_27_Start Time(0,0) -> order_id_8_pickup Time(480,480) -> order_id_8_drop Time(721,721) -> Route_END Time(721,721)

Time of the route: 721 seconds

Cost of the route: \$6762

Distance of the route: 2254 meters

Delay of the route: 0 seconds

Route for driver 28:

Driver_28_Start Time(0,0) -> order_id_83_pickup Time(780,780) -> order_id_51_pickup Time(890,890) -> order_id_83_drop Time(1484,1484) -> order_id_70_pickup Time(1719,1719) -> order_id_51_drop Time(1906,1906) -> order_id_25_pickup Time(2036,2036) -> order_id_70_drop Time(2561,2561) -> order_id_25_drop Time(2915,2915) -> Route_END Time(2915,2915)

Time of the route: 2915 seconds

Cost of the route: \$56518

Distance of the route: 18614 meters

Delay of the route: 676 seconds

Route for driver 29:

Driver_29_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 30:

Driver_30_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 31:

Driver_31_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 32:

Driver_32_Start Time(0,0) -> order_id_10_pickup Time(900,900) -> order_id_84_pickup Time(930,930) -> order_id_84_drop Time(991,991) -> order_id_87_pickup Time(1067,1067) -> order_id_10_drop Time(1420,1420) -> order_id_62_pickup Time(1706,1706) -> order_id_62_drop Time(1749,1749) -> order_id_61_pickup Time(1818,1818) -> order_id_61_drop Time(2136,2136) -> order_id_87_drop Time(2337,2337) -> Route_END Time(2337,2337)

Time of the route: 2337 seconds

Cost of the route: \$36153

Distance of the route: 12051 meters

Delay of the route: 0 seconds

Route for driver 33:

Driver_33_Start Time(0,0) -> order_id_33_pickup Time(720,720) -> order_id_2_pickup Time(767,767) -> order_id_33_drop Time(1254,1254) -> order_id_44_pickup Time(1466,1466) -> order_id_2_drop Time(1640,1640) -> order_id_71_pickup Time(1857,1857) -> order_id_36_pickup Time(1883,1883) -> order_id_44_drop Time(2044,2044) -> order_id_3_pickup Time(2139,2139) -> order_id_36_drop Time(2145,2145) -> order_id_71_drop Time(2320,2320) -> order_id_3_drop Time(2477,2477) -> Route END Time(2477,2477)

Time of the route: 2477 seconds

Cost of the route: \$45284

Distance of the route: 15069 meters

Delay of the route: 77 seconds

Route for driver 34:

Driver_34_Start Time(0,0) -> order_id_98_pickup Time(480,480) -> order_id_98_drop Time(758,758) -> Route_END Time(758,758)

Time of the route: 758 seconds

Cost of the route: \$8301

Distance of the route: 2767 meters

Delay of the route: 0 seconds

Route for driver 35:

Driver_35_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route for driver 36:

Driver_36_Start Time(0,0) -> order_id_96_pickup Time(780,780) -> order_id_96_drop Time(805,805) -> order_id_55_pickup Time(845,845) -> order_id_55_drop Time(1122,1122) -> order_id_23_pickup Time(1173,1173) -> order_id_23_drop Time(1473,1473) -> order_id_91_pickup Time(1550,1550) -> order_id_91_drop Time(1619,1619) -> Route_END Time(1619,1619)

Time of the route: 1619 seconds

Cost of the route: \$21144

Distance of the route: 7048 meters

Delay of the route: 0 seconds

Route for driver 37:

Driver_37_Start Time(0,0) -> order_id_85_pickup Time(960,960) -> order_id_49_pickup Time(1091,1091) -> order_id_85_drop Time(1550,1550) -> order_id_49_drop Time(1583,1583) -> Route_END Time(1583,1583)

Time of the route: 1583 seconds

Cost of the route: \$18846

Distance of the route: 6282 meters

Delay of the route: 0 seconds

Route for driver 38:

Time of the route: 2329 seconds

Cost of the route: \$40473

Distance of the route: 13491 meters

Delay of the route: 0 seconds

Route for driver 39:

Driver_39_Start Time(0,0) -> Route_END Time(0,0)

Time of the route: 0 seconds

Cost of the route: \$0

Distance of the route: 0 meters

Delay of the route: 0 seconds

Route Metrics:

Maximum of the route costs: \$56518

Total route cost: \$636478

Total route time: 84618 seconds

Total route distance: 337102 meters

Total route delay: 13282 seconds