

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44

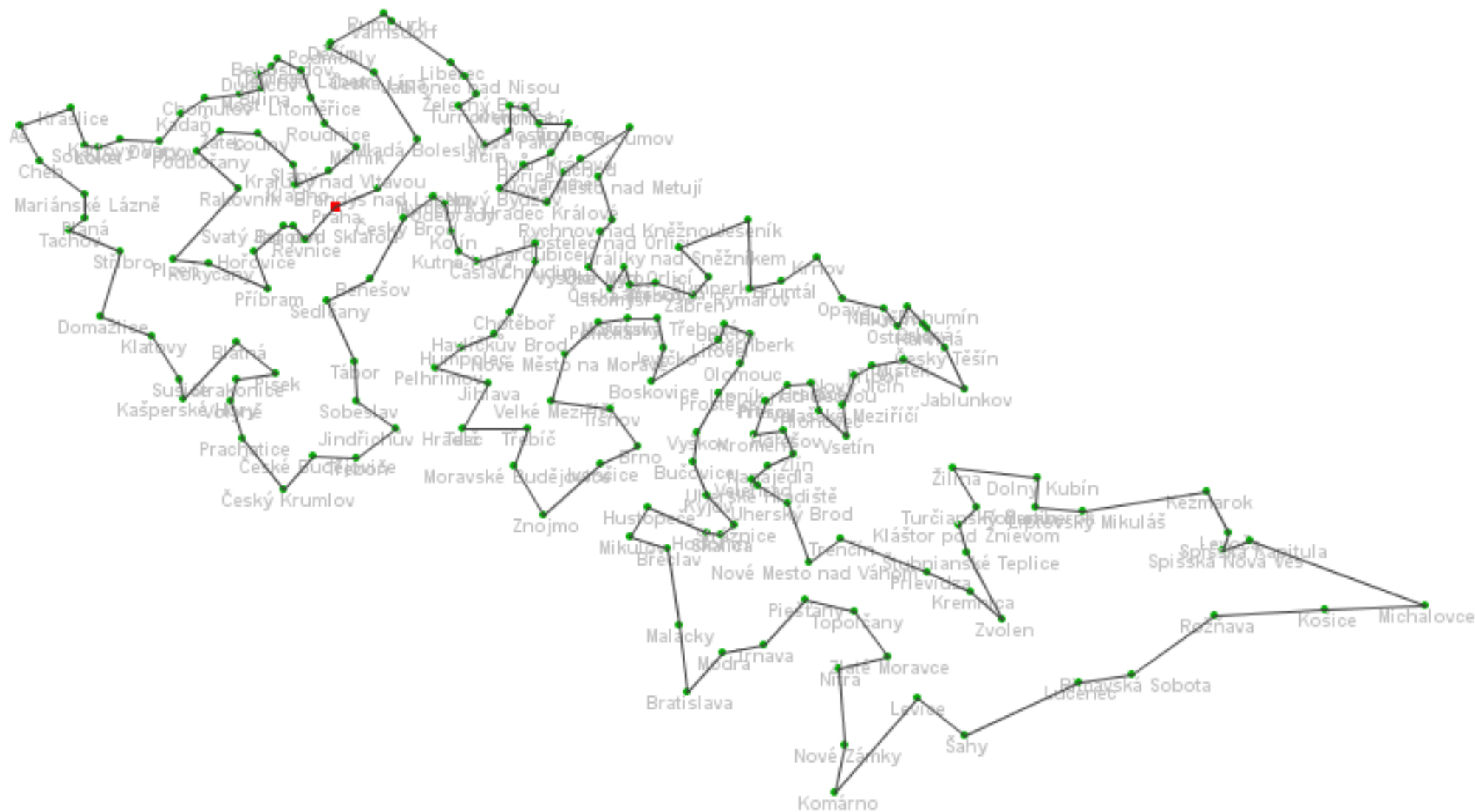


Result information

| | |
|------------------------|---|
| Report created: | 2005/08/23 17:44 |
| Program version: | 1.210 |
| TSP Engine: | GreedyCrossoverHibrid2OptEngine |
| Map file: | /org/saiko/ai/genetics/tsp/etc/cities_192.csv |
| Map file hash: | null |
| Number of cities: | 192 |
| Init. population size: | 200 |
| Population growth: | 0.001 |
| Final population size: | 200 |
| Mutation ratio: | 1 |
| RMS cost: | false |
| Generation: | 110 |
| Time: | 421 s. |
| Best cost age: | 50 |
| Best distance: | 4,001,369 |

System information

| | |
|-----------------------|----------------------------|
| availableProcessors: | 2 |
| freeMemory: | 4,400,640 |
| totalMemory: | 7,995,392 |
| maxMemory: | 469,762,048 |
| java.vm.name: | Java HotSpot(TM) Server VM |
| java.vm.vendor: | Sun Microsystems Inc. |
| java.vm.version: | 1.5.0_03-b07 |
| os.name: | SunOS |
| os.version: | 5.9 |
| os.arch: | sparc |
| sun.arch.data.model: | 32 |
| PROCESSOR_IDENTIFIER: | null |
| NUMBER_OF_PROCESSORS: | null |
| OS: | null |



Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



Salesman path

| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|----|-----------------------|---------------|---------------|-----------------|--------------|
| 1 | Praha | 744,379 | 1,043,261 | 0 | 0 |
| 2 | evnice | 758,766 | 1,059,975 | 22,053 | 22,053 |
| 3 | Svatý Jan pod Sklалou | 765,098 | 1,053,467 | 9,080 | 31,133 |
| 4 | Beroun | 769,833 | 1,052,795 | 4,782 | 35,915 |
| 5 | Hoovice | 783,792 | 1,065,772 | 19,059 | 54,975 |
| 6 | Píbram | 777,848 | 1,083,481 | 18,679 | 73,654 |
| 7 | Rokycany | 806,509 | 1,071,805 | 30,948 | 104,603 |
| 8 | Plzeň | 823,136 | 1,069,304 | 16,814 | 121,417 |
| 9 | Rakovník | 791,343 | 1,034,699 | 46,992 | 168,409 |
| 10 | Podbořany | 811,530 | 1,016,694 | 27,049 | 195,459 |
| 11 | Žatec | 800,479 | 1,007,109 | 14,628 | 210,088 |
| 12 | Louny | 782,604 | 1,007,876 | 17,891 | 227,979 |
| 13 | Slaný | 764,473 | 1,023,600 | 23,999 | 251,979 |
| 14 | Kladno | 763,818 | 1,032,996 | 9,418 | 261,397 |
| 15 | Kralupy nad Vltavou | 747,989 | 1,025,918 | 17,339 | 278,737 |
| 16 | Mělník | 734,452 | 1,014,686 | 17,590 | 296,327 |
| 17 | Roudnice | 749,617 | 1,003,231 | 19,005 | 315,332 |
| 18 | Litoměřice | 756,266 | 991,062 | 13,867 | 329,199 |
| 19 | Ústí nad Labem | 761,449 | 977,217 | 14,783 | 343,982 |
| 20 | Bohossudov | 772,583 | 971,868 | 12,352 | 356,335 |
| 21 | Teplice | 775,448 | 975,198 | 4,392 | 360,727 |
| 22 | Duchcov | 782,087 | 979,848 | 8,105 | 368,833 |
| 23 | Bílina | 780,557 | 985,694 | 6,042 | 374,876 |
| 24 | Most | 790,762 | 989,277 | 10,815 | 385,691 |
| 25 | Chomutov | 807,647 | 991,033 | 16,976 | 402,668 |
| 26 | Kadaň | 819,579 | 998,591 | 14,124 | 416,792 |
| 27 | Doupov | 830,051 | 1,011,981 | 16,998 | 433,791 |
| 28 | Karlovy Vary | 849,130 | 1,010,866 | 19,111 | 452,902 |
| 29 | Loket | 859,404 | 1,014,857 | 11,021 | 463,924 |
| 30 | Sokolov | 866,455 | 1,013,721 | 7,141 | 471,066 |
| 31 | Kraslice | 873,158 | 995,726 | 19,202 | 490,269 |
| 32 | Aš | 898,722 | 1,004,635 | 27,071 | 517,341 |
| 33 | Cheb | 888,243 | 1,021,421 | 19,788 | 537,129 |

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|----|-------------------|---------------|---------------|-----------------|--------------|
| 34 | Mariánské Lázn | 866,765 | 1,038,081 | 27,181 | 564,311 |
| 35 | Planá | 866,169 | 1,049,442 | 11,376 | 575,688 |
| 36 | Tachov | 874,453 | 1,055,616 | 10,331 | 586,019 |
| 37 | Stříbro | 849,249 | 1,065,269 | 26,989 | 613,009 |
| 38 | Domažlice | 859,200 | 1,097,479 | 33,712 | 646,721 |
| 39 | Klatovy | 833,769 | 1,107,059 | 27,175 | 673,896 |
| 40 | Sušice | 820,968 | 1,127,744 | 24,325 | 698,222 |
| 41 | Kašperské Hory | 818,734 | 1,137,449 | 9,958 | 708,181 |
| 42 | Blatná | 792,314 | 1,109,987 | 38,107 | 746,288 |
| 43 | Písek | 774,028 | 1,125,213 | 23,795 | 770,083 |
| 44 | Strakonice | 792,817 | 1,128,143 | 19,016 | 789,099 |
| 45 | Volyně | 795,612 | 1,138,976 | 11,187 | 800,287 |
| 46 | Prachatice | 789,557 | 1,156,703 | 18,732 | 819,020 |
| 47 | Český Krumlov | 769,683 | 1,181,970 | 32,146 | 851,166 |
| 48 | České Budějovice | 755,046 | 1,165,278 | 22,200 | 873,367 |
| 49 | Třeboň | 734,249 | 1,166,211 | 20,817 | 894,185 |
| 50 | Jindřichův Hradec | 715,175 | 1,151,891 | 23,851 | 918,036 |
| 51 | Soběslav | 734,195 | 1,138,170 | 23,452 | 941,489 |
| 52 | Tábor | 735,336 | 1,119,317 | 18,887 | 960,376 |
| 53 | Sedlčany | 748,326 | 1,089,494 | 32,529 | 992,905 |
| 54 | Benešov | 727,531 | 1,079,221 | 23,194 | 1,016,099 |
| 55 | Český Brod | 711,523 | 1,049,558 | 33,706 | 1,049,806 |
| 56 | Nymburk | 696,847 | 1,038,384 | 18,445 | 1,068,252 |
| 57 | Podbrady | 691,414 | 1,042,821 | 7,014 | 1,075,266 |
| 58 | Kolín | 688,324 | 1,056,296 | 13,824 | 1,089,091 |
| 59 | Kutná Hora | 684,745 | 1,066,091 | 10,428 | 1,099,520 |
| 60 | Čáslav | 675,708 | 1,070,959 | 10,264 | 1,109,784 |
| 61 | Pardubice | 646,846 | 1,061,401 | 30,403 | 1,140,188 |
| 62 | Chrudim | 646,755 | 1,070,746 | 9,345 | 1,149,533 |
| 63 | Chotěboř | 659,367 | 1,095,371 | 27,666 | 1,177,200 |
| 64 | Havlíčkův Brod | 666,678 | 1,105,687 | 12,643 | 1,189,844 |
| 65 | Humpolec | 683,363 | 1,112,967 | 18,204 | 1,208,048 |
| 66 | Pelhřimov | 695,535 | 1,122,644 | 15,549 | 1,223,598 |
| 67 | Jihlava | 669,593 | 1,129,605 | 26,859 | 1,250,458 |
| 68 | Telč | 682,155 | 1,152,338 | 25,972 | 1,276,431 |
| 69 | Třebíč | 650,360 | 1,152,444 | 31,795 | 1,308,226 |

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|-----|---------------------|---------------|---------------|-----------------|--------------|
| 70 | Moravské Bud jovice | 657,368 | 1,170,278 | 19,161 | 1,327,387 |
| 71 | Znojmo | 642,983 | 1,194,356 | 28,047 | 1,355,435 |
| 72 | Ivan ice | 615,606 | 1,169,481 | 36,990 | 1,392,425 |
| 73 | Brno | 597,475 | 1,160,280 | 20,332 | 1,412,757 |
| 74 | Tišnov | 610,128 | 1,142,117 | 22,135 | 1,434,893 |
| 75 | Velké Mezi í í | 639,004 | 1,138,843 | 29,061 | 1,463,954 |
| 76 | Nové M sto na Morav | 632,634 | 1,115,325 | 24,365 | 1,488,320 |
| 77 | Poli ka | 616,392 | 1,100,387 | 22,066 | 1,510,386 |
| 78 | Svitavy | 601,654 | 1,098,298 | 14,885 | 1,525,272 |
| 79 | Moravská T ebová | 587,128 | 1,098,011 | 14,528 | 1,539,801 |
| 80 | Jeví ko | 585,119 | 1,113,140 | 15,261 | 1,555,062 |
| 81 | Boskovice | 590,490 | 1,129,342 | 17,069 | 1,572,131 |
| 82 | Litovel | 558,025 | 1,108,509 | 38,574 | 1,610,706 |
| 83 | Uni ov | 554,885 | 1,101,375 | 7,794 | 1,618,500 |
| 84 | Šternberk | 542,109 | 1,106,379 | 13,721 | 1,632,221 |
| 85 | Olomouc | 547,164 | 1,120,779 | 15,261 | 1,647,483 |
| 86 | Prost jov | 558,248 | 1,134,569 | 17,692 | 1,665,175 |
| 87 | Vyškov | 568,747 | 1,153,991 | 22,078 | 1,687,253 |
| 88 | Bu ovice | 570,264 | 1,168,740 | 14,826 | 1,702,080 |
| 89 | Kyjov | 563,293 | 1,184,356 | 17,101 | 1,719,181 |
| 90 | Strážnice | 550,011 | 1,198,722 | 19,565 | 1,738,746 |
| 91 | Skalice | 556,642 | 1,203,651 | 8,262 | 1,747,009 |
| 92 | Hodonín | 563,944 | 1,202,918 | 7,338 | 1,754,347 |
| 93 | Hustope e | 592,161 | 1,190,674 | 30,758 | 1,785,106 |
| 94 | Mikulov | 601,034 | 1,204,635 | 16,542 | 1,801,648 |
| 95 | B eclav | 583,157 | 1,210,259 | 18,740 | 1,820,389 |
| 96 | Malacky | 577,192 | 1,248,140 | 38,347 | 1,858,737 |
| 97 | Bratislava | 573,006 | 1,280,236 | 32,367 | 1,891,105 |
| 98 | Modra | 556,197 | 1,261,428 | 25,224 | 1,916,330 |
| 99 | Trnava | 535,991 | 1,257,800 | 20,529 | 1,936,859 |
| 100 | Pieš any | 515,353 | 1,235,531 | 30,361 | 1,967,220 |
| 101 | Topol any | 491,190 | 1,241,416 | 24,869 | 1,992,090 |
| 102 | Zlaté Moravce | 475,745 | 1,263,202 | 26,705 | 2,018,795 |
| 103 | Nitra | 499,766 | 1,268,568 | 24,613 | 2,043,408 |
| 104 | Nové Zámky | 496,834 | 1,306,032 | 37,578 | 2,080,987 |
| 105 | Komárno | 501,419 | 1,329,815 | 24,220 | 2,105,208 |

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|-----|----------------------|---------------|---------------|-----------------|--------------|
| 106 | Levice | 461,256 | 1,282,997 | 61,684 | 2,166,892 |
| 107 | Šahy | 437,844 | 1,301,581 | 29,891 | 2,196,784 |
| 108 | Lu enec | 382,574 | 1,275,848 | 60,966 | 2,257,750 |
| 109 | Rimavská Sobota | 356,332 | 1,271,989 | 26,524 | 2,284,275 |
| 110 | Rož ava | 316,367 | 1,242,810 | 49,483 | 2,333,758 |
| 111 | Košice | 262,168 | 1,240,027 | 54,270 | 2,388,028 |
| 112 | Michalovce | 213,019 | 1,238,391 | 49,176 | 2,437,205 |
| 113 | Spišská Kapitula | 298,459 | 1,206,669 | 91,138 | 2,528,344 |
| 114 | Spišská Nová Ves | 312,163 | 1,211,490 | 14,527 | 2,542,871 |
| 115 | Levo a | 309,214 | 1,202,373 | 9,582 | 2,552,453 |
| 116 | Kežmarok | 320,317 | 1,183,183 | 22,170 | 2,574,623 |
| 117 | Liptovský Mikuláš | 380,598 | 1,192,395 | 60,980 | 2,635,604 |
| 118 | Rožumberok | 403,671 | 1,190,773 | 23,129 | 2,658,734 |
| 119 | Dolný Kubín | 402,601 | 1,175,985 | 14,826 | 2,673,561 |
| 120 | Žilina | 443,615 | 1,171,004 | 41,315 | 2,714,876 |
| 121 | Tur ianský Martin | 431,736 | 1,190,530 | 22,855 | 2,737,732 |
| 122 | Kláštôr pod Znievom | 440,965 | 1,199,103 | 12,596 | 2,750,328 |
| 123 | Štubnianské Teplice | 437,110 | 1,212,419 | 13,862 | 2,764,191 |
| 124 | Zvolen | 419,948 | 1,245,325 | 37,112 | 2,801,303 |
| 125 | Kremnica | 434,884 | 1,231,180 | 20,570 | 2,821,874 |
| 126 | Prievidza | 456,294 | 1,222,043 | 23,278 | 2,845,153 |
| 127 | Tren ín | 497,866 | 1,205,479 | 44,750 | 2,889,903 |
| 128 | Nové Mesto nad Váhom | 513,659 | 1,217,076 | 19,593 | 2,909,497 |
| 129 | Uherský Brod | 524,470 | 1,188,152 | 30,878 | 2,940,375 |
| 130 | Uherské Hradišt | 538,317 | 1,179,381 | 16,391 | 2,956,766 |
| 131 | Velehrad | 541,772 | 1,177,183 | 4,094 | 2,960,861 |
| 132 | Napajedla | 533,794 | 1,170,508 | 10,402 | 2,971,263 |
| 133 | Zlín | 521,001 | 1,164,278 | 14,229 | 2,985,492 |
| 134 | Holešov | 525,990 | 1,152,636 | 12,665 | 2,998,158 |
| 135 | Krom íž | 540,819 | 1,154,930 | 15,005 | 3,013,164 |
| 136 | Prešov | 534,385 | 1,138,796 | 17,369 | 3,030,533 |
| 137 | P erov | 534,385 | 1,138,796 | 0 | 3,030,533 |
| 138 | Lipník nad Be vou | 523,884 | 1,130,494 | 13,386 | 3,043,920 |
| 139 | Hranice | 512,903 | 1,129,666 | 11,012 | 3,054,932 |
| 140 | Hlohovec | 509,291 | 1,143,031 | 13,844 | 3,068,776 |
| 141 | Vsetín | 495,837 | 1,155,420 | 18,289 | 3,087,066 |

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|-----|-----------------------|---------------|---------------|-----------------|--------------|
| 142 | Valašské Meziříčí | 496,920 | 1,140,435 | 15,024 | 3,102,090 |
| 143 | Nový Jičín | 491,991 | 1,125,989 | 15,263 | 3,117,354 |
| 144 | Příbor | 483,104 | 1,121,193 | 10,098 | 3,127,452 |
| 145 | Místek | 467,202 | 1,118,845 | 16,074 | 3,143,526 |
| 146 | Jablunkov | 438,115 | 1,132,394 | 32,087 | 3,175,614 |
| 147 | Český Tešín | 447,423 | 1,113,049 | 21,467 | 3,197,082 |
| 148 | Karviná | 456,232 | 1,103,024 | 13,345 | 3,210,428 |
| 149 | Orlová | 458,468 | 1,100,978 | 3,030 | 3,213,458 |
| 150 | Nový Bohumín | 466,200 | 1,092,884 | 11,193 | 3,224,652 |
| 151 | Ostrava | 470,570 | 1,101,813 | 9,941 | 3,234,593 |
| 152 | Hlučín | 477,094 | 1,093,806 | 10,328 | 3,244,921 |
| 153 | Opava | 497,035 | 1,088,310 | 20,684 | 3,265,606 |
| 154 | Krnov | 509,608 | 1,068,533 | 23,435 | 3,289,041 |
| 155 | Bruntál | 527,476 | 1,079,871 | 21,161 | 3,310,203 |
| 156 | Rýmařov | 542,302 | 1,084,006 | 15,391 | 3,325,595 |
| 157 | Jeseník | 543,739 | 1,050,327 | 33,709 | 3,359,304 |
| 158 | Králíky nad Sněžníkem | 577,439 | 1,063,625 | 36,228 | 3,395,533 |
| 159 | Šumperk | 562,160 | 1,078,271 | 21,164 | 3,416,698 |
| 160 | Záběh | 570,259 | 1,086,749 | 11,724 | 3,428,423 |
| 161 | Lanškroun | 588,918 | 1,081,039 | 19,513 | 3,447,936 |
| 162 | Česká Terebová | 601,020 | 1,081,584 | 12,114 | 3,460,050 |
| 163 | Ústí nad Orlicí | 603,773 | 1,073,819 | 8,238 | 3,468,289 |
| 164 | Litomyšl | 610,953 | 1,084,210 | 12,630 | 3,480,919 |
| 165 | Vysoké Mýto | 620,618 | 1,073,791 | 14,211 | 3,495,131 |
| 166 | Kostelec nad Orlicí | 614,965 | 1,055,776 | 18,881 | 3,514,012 |
| 167 | Rychnov nad Kněžnou | 609,606 | 1,050,784 | 7,323 | 3,521,335 |
| 168 | Nové Město nad Metují | 616,757 | 1,029,451 | 22,499 | 3,543,835 |
| 169 | Broumov | 600,909 | 1,005,118 | 29,038 | 3,572,874 |
| 170 | Náchod | 625,330 | 1,020,999 | 29,130 | 3,602,005 |
| 171 | Jaroměř | 633,254 | 1,027,541 | 10,275 | 3,612,280 |
| 172 | Hradec Králové | 640,890 | 1,041,574 | 15,976 | 3,628,256 |
| 173 | Nový Bydžov | 664,056 | 1,035,043 | 24,069 | 3,652,325 |
| 174 | Holice | 653,055 | 1,023,312 | 16,082 | 3,668,407 |
| 175 | Dvůr Králové | 639,230 | 1,017,501 | 14,996 | 3,683,404 |
| 176 | Trutnov | 630,446 | 1,003,602 | 16,442 | 3,699,846 |
| 177 | Hostinné | 644,739 | 1,003,774 | 14,294 | 3,714,140 |

Travelling Salesman Problem

Application report

<http://www.saiko.cz/ai/tsp/>

2005/08/23 17:44



| | City | X (S-JTSK) | Y (S-JTSK) | Distance [m] | Total [m] |
|-----|--------------------|---------------|---------------|-----------------|--------------|
| 178 | Vrchlabí | 652,053 | 995,420 | 11,103 | 3,725,243 |
| 179 | Jilemnice | 659,078 | 994,561 | 7,077 | 3,732,321 |
| 180 | Nová Paka | 659,488 | 1,007,586 | 13,031 | 3,745,352 |
| 181 | Jičín | 672,143 | 1,013,491 | 13,964 | 3,759,317 |
| 182 | Turnov | 684,127 | 995,159 | 21,901 | 3,781,219 |
| 183 | Železný Brod | 676,172 | 988,694 | 10,250 | 3,791,469 |
| 184 | Jablonec nad Nisou | 681,081 | 980,595 | 9,470 | 3,800,940 |
| 185 | Liberec | 688,543 | 974,030 | 9,938 | 3,810,879 |
| 186 | Varnsdorf | 716,621 | 953,494 | 34,786 | 3,845,665 |
| 187 | Rumburk | 720,768 | 949,190 | 5,976 | 3,851,642 |
| 188 | Děčín | 746,550 | 964,348 | 29,907 | 3,881,550 |
| 189 | Podmokly | 747,972 | 966,020 | 2,194 | 3,883,745 |
| 190 | Česká Lípa | 725,927 | 978,427 | 25,296 | 3,909,041 |
| 191 | Mladá Boleslav | 704,097 | 1,011,269 | 39,435 | 3,948,477 |
| 192 | Brandýs nad Labem | 723,989 | 1,034,811 | 30,820 | 3,979,298 |
| 193 | Praha | 744,379 | 1,043,261 | 22,071 | 4,001,369 |