**Zadání 1. úkolu do předmětu IZU**

Jméno: Slavomír

Příjmení: Svorada

login: xsvora02

Pomocí metody A\* najděte nejkratší cestu v bludišti složeném z pravidelných buněk, kde prázdné buňky reprezentují volný prostor a překážky mají hodnotu „1“. Start je označen „S“ a cíl „C“. Po každém kroku vypište nové hodnoty zásobníků Open a Closed, nezapomeňte připsat celkové ohodnocení uzlu (s přesností na dvě desetinná místa). Do tabulky s ohodnocením uzlů zapisujte cestu do aktuálního uzlu „g“, heuristiku „h“ a celkovou cenu cesty „f“. Vyplňte, dokud nenaleznete cíl, ale maximálně 30 hodnot. Na konci napište nalezenou cestu. Cenu přechodu mezi dvěma buňkami i heuristiku počítejte jako přímou vzdálenost dvou buněk. Uzly generujte zleva doprava a shora dolů, uvažujte 8-okolí buňky, velikost strany buňky je rovna jedné. Mapu můžete (doporučuji) použít pro zakreslování rozgenerovávaných uzlů. Výslednou cestu zapište do tabulky Cesta,

Uzel: ([řádek, sloupec], ohodnocení)

Start: ([8, 2], 6,08)

Cíl: ([7, 8] , X)

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| Cesta: | [8,2], 6,08 | [8,3], 6,10 | [9,4], 6,88 | [8,5], 6,98 | [8,6], 7,06 | [7,7], 7,23 | [7,8], 7,23 |  |
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| [6, 3], 7,51 |  |  |  |  |  |  |  |  |
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| [9, 5], 7,02 |  |  |  |  |  |  |  |  |
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| [7, 5], 7,82 | [7, 6], 7,23 | [8, 6], 7,06 | [9, 6], 8,06 |  |  |  |  |  |
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| [7, 6], 7,23 | [8, 6], 7,06 | [9 ,6], 8,06 | [6, 1], 9,48 |  |  |  |  |  |
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| [8, 6], 7,06 | [9, 6], 7,24 | [6, 1], 9,48 |  |  |  |  |  |  |
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| [9, 6], 7,24 | [6, 1], 9,48 | [7, 7], 7,23 | [8, 7], 7,23 | [9, 7], 8,47 |  |  |  |  |
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| Closed: | [8, 2], 6,08 | [8, 3], 6,10 | [7, 3], 6,41 | [9, 3], 6,80 | [9, 4], 6,88 | [8, 5], 6,98 | [7, 2], 7,00 | [9, 5], 7,02 |
| [8, 6], 7,06 |  |  |  |  |  |  |  |  |
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| Open: | [7, 1], 8,41 | [8, 1], 8,07 | [9, 1], 8,69 | [9, 2], 7,32 | [6, 2], 8,08 | [6, 3], 7,51 | [7, 5], 7,82 | [9, 6], 7,24 |
| [6, 1], 9,48 | [7, 7], 7,23 | [8, 7], 7,23 | [9, 7], 8,47 | [6, 5], 9,80 | [6, 6], 8,47 | [6, 7], 8,05 |  |  |
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| Open: | [7, 1], 8,41 | [8, 1], 8,07 | [9, 1], 8,69 | [9, 2], 7,32 | [6, 2], 8,08 | [6, 3], 7,51 | [7, 5], 7,82 | [9, 6], 7,24 |
| [6, 1], 9,48 | [8, 7], 7,23 | [9, 7], 8,47 | [6, 5], 9,80 | [6, 6], 8,47 | [6, 7], 8,05 | [6, 8], 8,64 | [7, 8], 7,23 | [8, 8], 8,64 |
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| Closed: | [8, 2], 6,08 | [8 ,3], 6,10 | [7, 3], 6,41 | [9, 3], 6,80 | [9, 4], 6,88 | [8, 5], 6,98 | [7, 2], 7,00 | [9, 5], 7,02 |
| [8, 6], 7,06 | [7, 6], 7,23 | [7, 7], 7,23 |  |  |  |  |  |  |
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| Open: | [7, 1], 8,41 | [8, 1], 8,07 | [9, 1], 8,69 | [9, 2], 7,32 | [6, 2], 8,08 | [6, 3], 7,51 | [7, 5], 7,82 | [9, 6], 7,24 |
| [6, 1], 9,48 | [9, 7], 8,47 | [6, 5], 9,8 | [6, 6], 8,47 | [6, 7], 8,05 | [6, 8], 8,64 | [7, 8], 7,23 | [8, 8], 7,82 | [9, 8], 9,23 |
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| Closed: | [8, 2], 6,08 | [8 ,3], 6,10 | [7, 3], 6,41 | [9, 3], 6,80 | [9, 4], 6,88 | [8, 5], 6,98 | [7, 2], 7,00 | [9, 5], 7,02 |
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