**Zadání 1. úkolu do předmětu IZU**

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Příjmení: Bobčík

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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: ([5, 2], 6,32)

Cíl: ([3, 8] , X)

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| Cesta: | [5, 2], 6,32 | [5, 3], 6,39 | [5, 4], 6,47 | [4, 5], 6,57 | [4, 6], 6,65 | [3, 7], 6,82 | [3, 8], 6,82 |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [4,3], 6,51 | [5,1], 8,28 | [5,3], 6,39 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 |
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|  | ~~[4,3], 7,10~~ | [5,4], 6,47 | ~~[6,2], 9,12~~ | ~~[6,3], 7,83~~ |  |  |  |  |
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|  | [4,5], 6,57 | [5,5], 6,61 | ~~[6,3], 9,24~~ | [6,5], 7,65 |  |  |  |  |
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| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 |  |  |  |  |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [4,5], 6,57 | [5,5], 6,61 |
|  | [6,5], 7,65 | [3,2], 8,82 | [3,3], 7,41 | ~~[4,2], 8,49~~ |  |  |  |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [5,5], 6,61 | [6,5], 7,65 |
|  | [3,2], 8,82 | [3,3], 7,41 | [3,5], 7,41 | [3,6], 6,82 | [4,6], 6,65 | ~~[5,5], 8,02~~ | [5,6], 7,65 |  |
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| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 |  |  |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [6,5], 7,65 | [3,2], 8,82 |
|  | [3,3], 7,41 | [3,5], 7,41 | [3,6], 6,82 | [4,6], 6,65 | ~~[5,6], 7,65~~ | ~~[4,6], 6,65~~ | [5,6], 6,83 | ~~[6,5], 8,24~~ |
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| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 | [5,5], 6,61 |  |  |
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| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 | [5,5], 6,61 | [4,6], 6,65 |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [6,5], 7,65 | [3,2], 8,82 |
|  | [3,3], 7,41 | [3,5], 7,41 | [5,6], 6,83 | [6,6], 8,02 | [3,7], 6,82 | [4,7], 6,82 | [5,7], 8,06 | [2,5], 9,39 |
|  | [2,6], 8,06 | [2,7], 7,64 | ~~[3,5], 8,82~~ | ~~[3,7], 6,82~~ | ~~[4,7], 7,64~~ |  |  |  |
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| Closed: | [5**,**2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 | [5,5], 6,61 | [4,6], 6,65 | [3,6], 6,82 |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [6,5], 7,65 | [3,2], 8,82 |
|  | [3,3], 7,41 | [3,5], 7,41 | [5,6], 6,83 | [6,6], 8,02 | [4,7], 6,82 | [5,7], 8,06 | [2,5], 9,39 | [2,6], 8,06 |
|  | [2,7], 7,64 | ~~[2,6], 9,47~~ | ~~[2,7], 8,23~~ | [2,8], 8,23 | [3,8], 6,82 | ~~[4,7], 8,23~~ | [4,8], 8,23 |  |
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| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 | [5,5], 6,61 | [4,6], 6,65 | [3,6], 6,82 |
|  | [3,7], 6,82 |  |  |  |  |  |  |  |
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| Open: | [4,1], 8,48 | [4,2], 7,08 | [5,1], 8,28 | [6,1], 9,03 | [6,2], 7,71 | [6,3], 7,24 | [6,5], 7,65 | [3,2], 8,82 |
|  | [3,3], 7,41 | [3,5], 7,41 | [5,6], 6,83 | [6,6], 8,02 | [5,7], 8,06 | [2,5], 9,39 | [2,6], 8,06 | [2,7], 7,64 |
|  | [2,8], 8,23 | **[3,8], 6,82** | ~~[4,8], 8,23~~ | ~~[3,8], 6,82~~ | [4,8], 7,41 | ~~[5,6], 9,65~~ | ~~[5,7], 8,65~~ | [5,8], 8,82 |
|  |  | **GOAL** |  |  |  |  |  |  |
| Closed: | [5,2], 6,32 | [5,3], 6,39 | [5,4], 6,47 | [4,3], 6,51 | [4,5], 6,57 | [5,5], 6,61 | [4,6], 6,65 | [3,6], 6,82 |
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