

```

1  package edu.seaaddicts.brockbutler.maps;
2
3  /**
4   * Astar.java
5   * Brock Butler
6   * Path finding algorithm for navigation route
7   * portion of Brock Butler.
8   * Created by Thomas Nelson 2013-03-05
9   * Copyright (c) 2013 Sea Addicts. All rights reserved.
10  */
11
12  import java.util.ArrayList;
13  import java.util.PriorityQueue;
14  import android.util.Log;
15
16  public class Astar {
17
18      /**
19       * Class variable for the ASTAR class. All are private variables
20       * as they are all attributed to the database helper and
21       * are only used by this class.
22       */
23      private Position[] graph;
24
25      /**
26       * This method returns true or false if a given position exists
27       * within the graph(school). This method is to be used before pathGeneration.
28       * @param node
29       * @return
30       */
31      public boolean nodeExist(Position node) {
32          for(int j=0; j<graph.length; j++) {
33              if(node.compare(graph[j]))
34                  return true;
35          }
36          return false;
37      }
38
39      /**
40       * This method returns a position if it exists within
41       * the graph(school). Used by the interface searching
42       * feature.
43       * @param nodeName
44       * @return
45       */
46      public Position findPosition(String nodeName) {
47          for(int j=0; j<graph.length; j++) {
48              if(nodeName.equalsIgnoreCase(graph[j].nodeName))
49                  return graph[j];
50          }
51          return null;
52      }
53
54      /**
55       * The pathGeneration method is the main part of the A* algorithm. This method
56       * achieves an efficient and route between two positions based on a heuristic
57       * score.
58       * @param startNode
59       * @param goalNode
60       * @return
61       */
62      public Position[] pathGeneration(Position startNode, Position goalNode) {
63          for(int j=0; j<graph.length; j++) {
64              //graph[j].visited = false;
65              if(startNode.compare(graph[j]))
66                  startNode = graph[j];
67              if(goalNode.compare(graph[j]))
68                  goalNode = graph[j];
69          }
70      }
71

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72     if(startNode.accessible.length == 0 || goalNode.accessible.length == 0)
73         return null;
74
75     PriorityQueue<Position> openList = new PriorityQueue<Position>();
76     openList.add(startNode);
77
78     while(openList.size() != 0) {
79
80         Position tempNode = openList.remove();
81
82         if(tempNode == goalNode)
83             return pathReturn(tempNode);
84
85         tempNode.visited = true;
86         tempNode.gScore = 0;
87
88         double tempX = tempNode.xPosition - goalNode.xPosition;
89         double tempY = tempNode.yPosition - goalNode.yPosition;
90         tempNode.hScore = Math.sqrt(tempX*tempX + tempY*tempY);
91
92         for(int i=0; i<tempNode.accessible.length; i++) {
93             Position adjacentNode = tempNode.accessible[i];
94
95             if(adjacentNode.visited)
96                 continue;
97
98             double tempG = tempNode.gScore;
99             double x = tempNode.xPosition - adjacentNode.xPosition;
100            double y = tempNode.yPosition - adjacentNode.yPosition;
101            double dist = Math.sqrt(x*x + y*y);
102            tempG += dist;
103
104            if(tempG < adjacentNode.gScore ) {
105                openList.remove(adjacentNode);
106                adjacentNode.from = tempNode;
107                adjacentNode.gScore = tempG;
108
109                tempX = adjacentNode.xPosition - goalNode.xPosition;
110                tempY = adjacentNode.yPosition - goalNode.yPosition;
111
112
113                adjacentNode.hScore = Math.sqrt(tempX*tempX + tempY*tempY);
114                adjacentNode.fScore = adjacentNode.gScore + adjacentNode.hScore;
115                adjacentNode.visited = true;
116                openList.add(adjacentNode);
117            }
118        }
119    }
120    return null;
121 }
122
123
124
125 /**
126  * This method takes the generated route from the A* algorithm
127  * and processes it into a usable ArrayList of positions to be
128  * passed to the mapping activity for drawing a route on the
129  * map.
130  * @param end
131  * @return
132  * @throws ClassCastException
133  */
134 public Position[] pathReturn(Position end) throws ClassCastException {
135     ArrayList<Position> routeList = new ArrayList<Position>();
136     routeList.add(end);
137
138     while(end.from != null) {
139         end = end.from;
140         routeList.add(end);
141     }
142

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143     Object tempRoute[] = (routeList.toArray());
144     Position route[] = new Position[tempRoute.length];
145
146     for(int i=0; i<route.length; i++) {
147         route[i] = (Position)(tempRoute[route.length - i-1]);
148     }
149
150     return route;
151 }
152
153 /**
154  * Constructor method for the ASTAR class. The constructor
155  * creates the searchable graph space that represents the
156  * school hallways and classrooms.
157  */
158 public Astar () {
159
160     graph = new Position[424];
161     graph[0] = new Position(1732,687,"J Block","J01");
162     graph[1] = new Position(1763,688,"J Block","J02");
163     graph[2] = new Position(1775,698,"J Block","J03");
164     graph[3] = new Position(1799,723,"J Block","J04");
165     graph[4] = new Position(1724,677,"J Block","J05");
166     graph[5] = new Position(1789,663,"J Block","J06");
167     graph[6] = new Position(1805,648,"J Block","J07");
168     graph[7] = new Position(1819,637,"J Block","J08");
169     graph[8] = new Position(1832,625,"J Block","J09");
170     graph[9] = new Position(1846,613,"J Block","J10");
171     graph[10] = new Position(1836,600,"J Block","J11");
172     graph[11] = new Position(1818,583,"J Block","J12");
173     graph[12] = new Position(1858,624,"J Block","J13");
174     graph[13] = new Position(1873,638,"J Block","J14");
175     graph[14] = new Position(1886,652,"J Block","J15");
176     graph[15] = new Position(1901,666,"J Block","J16");
177     graph[16] = new Position(1906,684,"J Block","J17");
178     graph[17] = new Position(1902,705,"J Block","J18");
179     graph[18] = new Position(1886,721,"J Block","J19");
180     graph[19] = new Position(1868,738,"J Block","J20");
181     graph[20] = new Position(1856,752,"J Block","J21");
182     graph[21] = new Position(1836,771,"J Block","J22");
183     graph[22] = new Position(1818,789,"J Block","J23");
184     graph[23] = new Position(1791,765,"J301","J301");
185     graph[24] = new Position(1831,747,"J304","J304");
186     graph[25] = new Position(1819,812,"J305","J305");
187     graph[26] = new Position(1852,780,"J306","J306");
188     graph[27] = new Position(1869,766,"J307","J307");
189     graph[28] = new Position(1845,714,"J310","J310");
190     graph[29] = new Position(1890,748,"J311","J311");
191     graph[30] = new Position(1904,733,"J312","J312");
192     graph[31] = new Position(1921,717,"J313","J313");
193     graph[32] = new Position(1939,684,"J314","J314");
194     graph[33] = new Position(1888,684,"J315","J315");
195     graph[34] = new Position(1923,656,"J318","J318");
196     graph[35] = new Position(1904,640,"J319","J319");
197     graph[36] = new Position(1865,664,"J320","J320");
198     graph[37] = new Position(1886,622,"Vlad","Vlad");
199     graph[38] = new Position(1870,606,"J322","J322");
200     graph[39] = new Position(1854,588,"J323","J323");
201     graph[40] = new Position(1808,567,"J324","J324");
202     graph[41] = new Position(1799,604,"J327","J327");
203     graph[42] = new Position(1841,651,"J328","J328");
204     graph[43] = new Position(1779,632,"J330","J330");
205     graph[44] = new Position(1811,674,"J331","J331");
206     graph[45] = new Position(1796,690,"J332","J332");
207     graph[46] = new Position(1762,650,"J333","J333");
208     graph[47] = new Position(1323,879,"D Block","D01");
209     graph[48] = new Position(1348,878,"D Block","D02");
210     graph[49] = new Position(1371,877,"D Block","D03");
211     graph[50] = new Position(1390,877,"D Block","D04");
212     graph[51] = new Position(1417,876,"D Block","D05");
213     graph[52] = new Position(1437,876,"D Block","D06");

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214 graph[53] = new Position(1459,876,"D Block","D07");
215 graph[54] = new Position(1480,877,"D Block","D08");
216 graph[55] = new Position(1505,878,"D Block","D09");
217 graph[56] = new Position(1523,878,"D Block","D10");
218 graph[57] = new Position(1551,871,"D Block","D11");
219 graph[58] = new Position(1563,857,"D Block","D12");
220 graph[59] = new Position(1580,838,"D Block","D13");
221 graph[60] = new Position(1591,824,"D Block","D14");
222 graph[61] = new Position(1606,812,"D Block","D15");
223 graph[62] = new Position(1623,790,"D Block","D16");
224 graph[63] = new Position(1639,782,"D Block","D17");
225 graph[64] = new Position(1656,764,"D Block","D18");
226 graph[65] = new Position(1668,750,"D Block","D19");
227 graph[66] = new Position(1679,729,"D Block","D20");
228 graph[67] = new Position(1700,708,"D Block","D21");
229 graph[68] = new Position(1670,777,"D Block","D22");
230 graph[69] = new Position(1688,795,"D Block","D23");
231 graph[70] = new Position(1710,810,"D Block","D24");
232 graph[71] = new Position(1732,839,"D Block","D25");
233 graph[72] = new Position(1747,854,"D Block","D26");
234 graph[73] = new Position(1767,875,"D Block","D27");
235 graph[74] = new Position(1780,887,"D Block","D28");
236 graph[75] = new Position(1863,909,"D Block","D29");
237 graph[76] = new Position(1821,929,"D Block","D30");
238 graph[77] = new Position(1805,943,"D Block","D31");
239 graph[78] = new Position(1784,965,"D Block","D32");
240 graph[79] = new Position(1768,980,"D Block","D33");
241 graph[80] = new Position(1746,1003,"D Block","D34");
242 graph[81] = new Position(1728,1020,"D Block","D35");
243 graph[82] = new Position(1708,1042,"D Block","D36");
244 graph[83] = new Position(1693,1052,"D Block","D37");
245 graph[84] = new Position(1672,1037,"D Block","D38");
246 graph[85] = new Position(1657,1022,"D Block","D39");
247 graph[86] = new Position(1638,1002,"D Block","D40");
248 graph[87] = new Position(1615,978,"D Block","D41");
249 graph[88] = new Position(1595,960,"D Block","D42");
250 graph[89] = new Position(1585,949,"D Block","D43");
251 graph[90] = new Position(1565,929,"D Block","D44");
252 graph[91] = new Position(1541,905,"D Block","D45");
253 graph[92] = new Position(1714,691,"D Block","D46");
254 graph[93] = new Position(1369,843,"D300","D300");
255 graph[94] = new Position(1402,843,"D301","D301");
256 graph[95] = new Position(1438,843,"D302","D302");
257 graph[96] = new Position(1471,843,"D303","D303");
258 graph[97] = new Position(1505,843,"D304","D304");
259 graph[98] = new Position(1546,822,"D306","D306");
260 graph[99] = new Position(1563,810,"D307","D307");
261 graph[100] = new Position(1606,904,"D308","D308");
262 graph[101] = new Position(1662,849,"D309","D309");
263 graph[102] = new Position(1692,773,"D310","D310");
264 graph[103] = new Position(1743,808,"D314","D314");
265 graph[104] = new Position(1785,853,"D315","D315");
266 graph[105] = new Position(1812,873,"D316","D316");
267 graph[106] = new Position(1830,890,"D317","D317");
268 graph[107] = new Position(1835,913,"D318","D318");
269 graph[108] = new Position(1746,929,"D319","D319");
270 graph[109] = new Position(1707,965,"D320","D320");
271 graph[110] = new Position(1678,994,"D321","D321");
272 graph[111] = new Position(1579,798,"D328","D328");
273 graph[112] = new Position(1595,782,"D329","D329");
274 graph[113] = new Position(1612,764,"D330","D330");
275 graph[114] = new Position(1625,753,"D331","D331");
276 graph[115] = new Position(1644,733,"D332","D332");
277 graph[116] = new Position(1664,713,"D333","D333");
278 graph[117] = new Position(1677,682,"G Block","G01");
279 graph[118] = new Position(1655,664,"G Block","G02");
280 graph[119] = new Position(1640,644,"G Block","G03");
281 graph[120] = new Position(1640,614,"G Block","G04");
282 graph[121] = new Position(1670,594,"G Block","G05");
283 graph[122] = new Position(1640,588,"G Block","G06");
284 graph[123] = new Position(1640,555,"G Block","G07");
```

```
285 graph[124] = new Position(1622,515,"G Block","G08");
286 graph[125] = new Position(1585,495,"G Block","G09");
287 graph[126] = new Position(1495,492,"G Block","G10");
288 graph[127] = new Position(1495,469,"G Block","G11");
289 graph[128] = new Position(1447,469,"G Block","G12");
290 graph[129] = new Position(1406,506,"G Block","G13");
291 graph[130] = new Position(1534,469,"G Block","G14");
292 graph[131] = new Position(1573,469,"G Block","G15");
293 graph[132] = new Position(1617,469,"G Block","G16");
294 graph[133] = new Position(1661,469,"G Block","G17");
295 graph[134] = new Position(1723,469,"G Block","G18");
296 graph[135] = new Position(1750,469,"G Block","G19");
297 graph[136] = new Position(1750,430,"G Block","G20");
298 graph[137] = new Position(1452,444,"G300","G300");
299 graph[138] = new Position(1509,444,"G301","G301");
300 graph[139] = new Position(1607,444,"G302","G302");
301 graph[140] = new Position(1628,444,"G303","G303");
302 graph[141] = new Position(1669,444,"G304","G304");
303 graph[142] = new Position(1703,444,"G305","G305");
304 graph[143] = new Position(1734,444,"G306","G306");
305 graph[144] = new Position(1698,621,"G310","G310");
306 graph[145] = new Position(850,883,"C Block","C01");
307 graph[146] = new Position(870,883,"C Block","C02");
308 graph[147] = new Position(909,883,"C Block","C03");
309 graph[148] = new Position(927,883,"C Block","C04");
310 graph[149] = new Position(949,883,"C Block","C05");
311 graph[150] = new Position(990,883,"C Block","C06");
312 graph[151] = new Position(1020,883,"C Block","C07");
313 graph[152] = new Position(1049,878,"C Block","C08");
314 graph[153] = new Position(1065,849,"C Block","C09");
315 graph[154] = new Position(1084,831,"C Block","C10");
316 graph[155] = new Position(1110,804,"C Block","C11");
317 graph[156] = new Position(1137,777,"C Block","C12");
318 graph[157] = new Position(1165,749,"C Block","C13");
319 graph[158] = new Position(1186,727,"C Block","C14");
320 graph[159] = new Position(1069,891,"C Block","C15");
321 graph[160] = new Position(1088,907,"C Block","C16");
322 graph[161] = new Position(1103,913,"C Block","C17");
323 graph[162] = new Position(1124,911,"C Block","C18");
324 graph[163] = new Position(1149,914,"C Block","C19");
325 graph[164] = new Position(1175,911,"C Block","C20");
326 graph[165] = new Position(1127,912,"C Block","C21");
327 graph[166] = new Position(1254,915,"C Block","C22");
328 graph[167] = new Position(1280,908,"C Block","C23");
329 graph[168] = new Position(1295,891,"C Block","C24");
330 graph[169] = new Position(1318,878,"C Block","C25");
331 graph[170] = new Position(1255,934,"C Block","C26");
332 graph[171] = new Position(1247,951,"C Block","C27");
333 graph[172] = new Position(1235,966,"C Block","C28");
334 graph[173] = new Position(1220,984,"C Block","C29");
335 graph[174] = new Position(1183,994,"C Block","C30");
336 graph[175] = new Position(1143,975,"C Block","C31");
337 graph[176] = new Position(1124,954,"C Block","C32");
338 graph[177] = new Position(1103,936,"C Block","C33");
339 graph[178] = new Position(858,840,"C300","C300");
340 graph[179] = new Position(894,840,"C301","C301");
341 graph[180] = new Position(929,850,"C302","C302");
342 graph[181] = new Position(965,840,"C303","C303");
343 graph[182] = new Position(995,840,"C304","C304");
344 graph[183] = new Position(1049,843,"C305","C305");
345 graph[184] = new Position(1162,873,"C306","C306");
346 graph[185] = new Position(1144,813,"C307","C307");
347 graph[186] = new Position(1208,782,"C308","C308");
348 graph[187] = new Position(1267,847,"C310","C310");
349 graph[188] = new Position(1297,936,"C312","C312");
350 graph[189] = new Position(1285,946,"C313","C313");
351 graph[190] = new Position(1271,958,"C314","C314");
352 graph[191] = new Position(1255,971,"C315","C315");
353 graph[192] = new Position(1191,960,"C316","C316");
354 graph[193] = new Position(1243,987,"C317","C317");
355 graph[194] = new Position(1231,998,"C318","C318");
```

```
356 graph[195] = new Position(1218,1015,"C319","C319");
357 graph[196] = new Position(1202,1026,"C320","C320");
358 graph[197] = new Position(1183,1042,"C321","C321");
359 graph[198] = new Position(1160,1023,"C322","C322");
360 graph[199] = new Position(1136,999,"C324","C324");
361 graph[200] = new Position(1124,987,"C325","C325");
362 graph[201] = new Position(1110,973,"C326","C326");
363 graph[202] = new Position(1097,961,"C327","C327");
364 graph[203] = new Position(1083,947,"C328","C328");
365 graph[204] = new Position(1069,935,"C329","C329");
366 graph[205] = new Position(1057,922,"C330","C330");
367 graph[206] = new Position(1044,908,"C331","C331");
368 graph[207] = new Position(509,875,"B Block","B01");
369 graph[208] = new Position(534,879,"B Block","B02");
370 graph[209] = new Position(557,886,"B Block","B03");
371 graph[210] = new Position(570,902,"B Block","B04");
372 graph[211] = new Position(578,917,"B Block","B05");
373 graph[212] = new Position(592,932,"B Block","B06");
374 graph[213] = new Position(607,947,"B Block","B07");
375 graph[214] = new Position(621,960,"B Block","B08");
376 graph[215] = new Position(633,973,"B Block","B09");
377 graph[216] = new Position(646,985,"B Block","B10");
378 graph[217] = new Position(674,994,"B Block","B11");
379 graph[218] = new Position(705,784,"B Block","B12");
380 graph[219] = new Position(720,969,"B Block","B13");
381 graph[220] = new Position(732,956,"B Block","B14");
382 graph[221] = new Position(746,942,"B Block","B15");
383 graph[222] = new Position(759,928,"B Block","B16");
384 graph[223] = new Position(772,917,"B Block","B17");
385 graph[224] = new Position(783,898,"B Block","B18");
386 graph[225] = new Position(797,883,"B Block","B19");
387 graph[226] = new Position(827,876,"B Block","B20");
388 graph[227] = new Position(760,888,"B Block","B21");
389 graph[228] = new Position(746,872,"B Block","B22");
390 graph[229] = new Position(732,858,"B Block","B23");
391 graph[230] = new Position(717,844,"B Block","B24");
392 graph[231] = new Position(704,832,"B Block","B25");
393 graph[232] = new Position(689,816,"B Block","B26");
394 graph[233] = new Position(672,801,"B Block","B27");
395 graph[234] = new Position(654,781,"B Block","B28");
396 graph[235] = new Position(674,764,"B Block","B29");
397 graph[236] = new Position(638,800,"B Block","B30");
398 graph[237] = new Position(617,821,"B Block","B31");
399 graph[238] = new Position(605,833,"B Block","B32");
400 graph[239] = new Position(584,849,"B Block","B33");
401 graph[240] = new Position(569,867,"B Block","B34");
402 graph[241] = new Position(590,905,"B Block","B35");
403 graph[242] = new Position(627,907,"B Block","B36");
404 graph[243] = new Position(648,910,"B Block","B37");
405 graph[244] = new Position(674,911,"B Block","B38");
406 graph[245] = new Position(699,910,"B Block","B39");
407 graph[246] = new Position(718,904,"B Block","B40");
408 graph[247] = new Position(753,904,"B Block","B41");
409 graph[248] = new Position(585,883,"B300","B300");
410 graph[249] = new Position(598,874,"B301","B301");
411 graph[250] = new Position(610,865,"B302","B302");
412 graph[251] = new Position(620,854,"B303","B303");
413 graph[252] = new Position(650,816,"B304","B304");
414 graph[253] = new Position(693,791,"B305","B305");
415 graph[254] = new Position(705,802,"B306","B306");
416 graph[255] = new Position(721,818,"B307","B307");
417 graph[256] = new Position(734,833,"B308","B308");
418 graph[257] = new Position(693,853,"B309","B309");
419 graph[258] = new Position(745,846,"B310","B310");
420 graph[259] = new Position(766,850,"B311","B311");
421 graph[260] = new Position(735,887,"B312","B312");
422 graph[261] = new Position(772,872,"B313","B313");
423 graph[262] = new Position(810,905,"B314","B314");
424 graph[263] = new Position(798,920,"B315","B315");
425 graph[264] = new Position(785,934,"B316","B316");
426 graph[265] = new Position(773,947,"B317","B317");
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427 graph[266] = new Position(743,923,"B318","B318");
428 graph[267] = new Position(755,950,"B319","B319");
429 graph[268] = new Position(747,972,"B320","B320");
430 graph[269] = new Position(731,986,"B321","B321");
431 graph[270] = new Position(647,964,"B322","B322");
432 graph[271] = new Position(720,1003,"B323","B323");
433 graph[272] = new Position(708,1012,"B324","B324");
434 graph[273] = new Position(693,1026,"B325","B325");
435 graph[274] = new Position(674,1044,"B326","B326");
436 graph[275] = new Position(656,1024,"B327","B327");
437 graph[276] = new Position(641,1012,"B328","B328");
438 graph[277] = new Position(631,996,"B329","B329");
439 graph[278] = new Position(617,985,"B330","B330");
440 graph[279] = new Position(605,973,"B331","B331");
441 graph[280] = new Position(590,958,"B332","B332");
442 graph[281] = new Position(576,946,"B333","B333");
443 graph[282] = new Position(560,934,"B334","B334");
444 graph[283] = new Position(547,922,"B335","B335");
445 graph[284] = new Position(533,907,"B336","B336");
446 graph[285] = new Position(155,615,"A Block","A01");
447 graph[286] = new Position(195,600,"A Block","A02");
448 graph[287] = new Position(222,625,"A Block","A03");
449 graph[288] = new Position(256,652,"A Block","A04");
450 graph[289] = new Position(290,684,"A Block","A05");
451 graph[290] = new Position(325,720,"A Block","A06");
452 graph[291] = new Position(353,748,"A Block","A07");
453 graph[292] = new Position(383,777,"A Block","A08");
454 graph[293] = new Position(420,815,"A Block","A09");
455 graph[294] = new Position(453,851,"A Block","A10");
456 graph[295] = new Position(448,875,"A Block","A11");
457 graph[296] = new Position(490,880,"A Block","A12");
458 graph[297] = new Position(403,856,"A Block","A13");
459 graph[298] = new Position(360,856,"A Block","A14");
460 graph[299] = new Position(340,852,"A Block","A15");
461 graph[300] = new Position(315,828,"A Block","A16");
462 graph[301] = new Position(291,802,"A Block","A17");
463 graph[302] = new Position(264,775,"A Block","A18");
464 graph[303] = new Position(240,751,"A Block","A19");
465 graph[304] = new Position(210,721,"A Block","A20");
466 graph[305] = new Position(183,694,"A Block","A21");
467 graph[306] = new Position(186,654,"A Block","A22");
468 graph[307] = new Position(83,644,"A304","A304");
469 graph[308] = new Position(78,688,"A305","A305");
470 graph[309] = new Position(100,644,"A306","A306");
471 graph[310] = new Position(113,688,"A307","A307");
472 graph[311] = new Position(158,685,"A310","A310");
473 graph[312] = new Position(173,712,"A311","A311");
474 graph[313] = new Position(196,680,"A312","A312");
475 graph[314] = new Position(183,725,"A313","A313");
476 graph[315] = new Position(213,695,"A314","A314");
477 graph[316] = new Position(241,718,"A315","A315");
478 graph[317] = new Position(198,739,"A316","A316");
479 graph[318] = new Position(211,753,"A317","A317");
480 graph[319] = new Position(223,767,"A318","A318");
481 graph[320] = new Position(275,750,"A319","A319");
482 graph[321] = new Position(236,776,"A320","A320");
483 graph[322] = new Position(250,789,"A321","A321");
484 graph[323] = new Position(262,802,"A322","A322");
485 graph[324] = new Position(306,748,"A323","A323");
486 graph[325] = new Position(278,818,"A324","A324");
487 graph[326] = new Position(319,800,"A325","A325");
488 graph[327] = new Position(288,829,"A326","A326");
489 graph[328] = new Position(331,813,"A327","A327");
490 graph[329] = new Position(302,842,"A328","A328");
491 graph[330] = new Position(347,825,"A329","A329");
492 graph[331] = new Position(319,858,"A330","A330");
493 graph[332] = new Position(332,871,"A331","A331");
494 graph[333] = new Position(355,884,"A332","A332");
495 graph[334] = new Position(361,836,"A334","A334");
496 graph[335] = new Position(387,881,"A335","A335");
497 graph[336] = new Position(420,887,"A336","A336");
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498 graph[337] = new Position(238,671,"A338","A338");
499 graph[338] = new Position(673,753,"E Block","E01");
500 graph[339] = new Position(673,709,"E Block","E02");
501 graph[340] = new Position(671,674,"E Block","E03");
502 graph[341] = new Position(715,661,"E Block","E04");
503 graph[342] = new Position(748,626,"E Block","E05");
504 graph[343] = new Position(781,594,"E Block","E06");
505 graph[344] = new Position(833,544,"E Block","E07");
506 graph[345] = new Position(861,525,"E Block","E08");
507 graph[346] = new Position(861,500,"E Block","E09");
508 graph[347] = new Position(880,499,"E Block","E10");
509 graph[348] = new Position(907,501,"E Block","E11");
510 graph[349] = new Position(959,502,"E Block","E12");
511 graph[350] = new Position(672,654,"E300","E300");
512 graph[351] = new Position(695,651,"E301","E301");
513 graph[352] = new Position(704,628,"E302","E302");
514 graph[353] = new Position(741,588,"E303","E303");
515 graph[354] = new Position(814,527,"E304","E304");
516 graph[355] = new Position(842,506,"E305","E305");
517 graph[356] = new Position(987,492,"F Block","F01");
518 graph[357] = new Position(1022,465,"F Block","F02");
519 graph[358] = new Position(1096,466,"F Block","F03");
520 graph[359] = new Position(1273,466,"F Block","F04");
521 graph[360] = new Position(1341,467,"F Block","F05");
522 graph[361] = new Position(1387,491,"F Block","F06");
523 graph[362] = new Position(1368,515,"F Block","F07");
524 graph[363] = new Position(1332,555,"F Block","F08");
525 graph[364] = new Position(1306,581,"F Block","F09");
526 graph[365] = new Position(1264,624,"F Block","F10");
527 graph[366] = new Position(1217,668,"F Block","F11");
528 graph[367] = new Position(1201,684,"F Block","F12");
529 graph[368] = new Position(1183,706,"F Block","F13");
530 graph[369] = new Position(1172,654,"F Block","F14");
531 graph[370] = new Position(1166,679,"F300","F300");
532 graph[371] = new Position(1149,665,"F301","F301");
533 graph[372] = new Position(1123,640,"F302","F302");
534 graph[373] = new Position(1082,583,"F303","F303");
535 graph[374] = new Position(1050,506,"F310","F310");
536 graph[375] = new Position(1079,518,"F311","F311");
537 graph[376] = new Position(1322,526,"F317","F317");
538 graph[377] = new Position(1096,456,"H Block","H01");
539 graph[378] = new Position(1093,427,"H Block","H02");
540 graph[379] = new Position(1095,407,"H Block","H03");
541 graph[380] = new Position(1093,367,"H Block","H04");
542 graph[381] = new Position(1093,307,"H Block","H05");
543 graph[382] = new Position(1093,243,"H Block","H06");
544 graph[383] = new Position(1094,169,"H Block","H07");
545 graph[384] = new Position(1093,120,"H Block","H08");
546 graph[385] = new Position(1165,120,"H Block","H09");
547 graph[386] = new Position(1206,119,"H Block","H10");
548 graph[387] = new Position(1247,118,"H Block","H11");
549 graph[388] = new Position(1273,119,"H Block","H12");
550 graph[389] = new Position(1274,162,"H Block","H13");
551 graph[390] = new Position(1273,184,"H Block","H14");
552 graph[391] = new Position(1272,228,"H Block","H15");
553 graph[392] = new Position(1273,265,"H Block","H16");
554 graph[393] = new Position(1273,301,"H Block","H17");
555 graph[394] = new Position(1272,350,"H Block","H18");
556 graph[395] = new Position(1272,376,"H Block","H19");
557 graph[396] = new Position(1271,409,"H Block","H20");
558 graph[397] = new Position(1272,431,"H Block","H21");
559 graph[398] = new Position(1271,456,"H Block","H22");
560 graph[399] = new Position(1333,118,"H Block","H23");
561 graph[400] = new Position(1074,429,"H300","H300");
562 graph[401] = new Position(1117,429,"H301","H301");
563 graph[402] = new Position(1118,406,"H302","H302");
564 graph[403] = new Position(1070,356,"H303","H303");
565 graph[404] = new Position(1114,307,"H304","H304");
566 graph[405] = new Position(1074,255,"H305","H305");
567 graph[406] = new Position(1119,247,"H306","H306");
568 graph[407] = new Position(1072,238,"H307","H307");
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569 graph[408] = new Position(1072,169,"H308","H308");
570 graph[409] = new Position(1116,167,"H309","H309");
571 graph[410] = new Position(1108,94,"H310","H310");
572 graph[411] = new Position(1169,97,"H313","H313");
573 graph[412] = new Position(1225,142,"H314","H314");
574 graph[413] = new Position(1256,94,"H315","H315");
575 graph[414] = new Position(1300,164,"H316","H316");
576 graph[415] = new Position(1237,189,"H317","H317");
577 graph[416] = new Position(1305,187,"H318","H318");
578 graph[417] = new Position(1236,266,"H319","H319");
579 graph[418] = new Position(1303,261,"H320","H320");
580 graph[419] = new Position(1241,338,"H321","H321");
581 graph[420] = new Position(1240,385,"H322","H322");
582 graph[421] = new Position(1302,356,"H323","H323");
583 graph[422] = new Position(1307,414,"H324","H324");
584 graph[423] = new Position(1250,433,"H325","H325");
585
586 graph[0].accessible = new Position[2];
587 graph[0].accessible[0] = graph[1];
588 graph[0].accessible[1] = graph[92];
589
590 graph[1].accessible = new Position[3];
591 graph[1].accessible[0] = graph[0];
592 graph[1].accessible[1] = graph[2];
593 graph[1].accessible[2] = graph[4];
594
595 graph[2].accessible = new Position[2];
596 graph[2].accessible[0] = graph[1];
597 graph[2].accessible[1] = graph[3];
598
599 graph[3].accessible = new Position[3];
600 graph[3].accessible[0] = graph[2];
601 graph[3].accessible[1] = graph[23];
602 graph[3].accessible[2] = graph[28];
603
604 graph[4].accessible = new Position[4];
605 graph[4].accessible[0] = graph[1];
606 graph[4].accessible[1] = graph[5];
607 graph[4].accessible[2] = graph[45];
608 graph[4].accessible[3] = graph[46];
609
610 graph[5].accessible = new Position[4];
611 graph[5].accessible[0] = graph[4];
612 graph[5].accessible[1] = graph[6];
613 graph[5].accessible[2] = graph[43];
614 graph[5].accessible[3] = graph[44];
615
616 graph[6].accessible = new Position[4];
617 graph[6].accessible[0] = graph[5];
618 graph[6].accessible[1] = graph[7];
619 graph[6].accessible[2] = graph[41];
620 graph[6].accessible[3] = graph[42];
621
622 graph[7].accessible = new Position[2];
623 graph[7].accessible[0] = graph[6];
624 graph[7].accessible[1] = graph[8];
625
626 graph[8].accessible = new Position[2];
627 graph[8].accessible[0] = graph[7];
628 graph[8].accessible[1] = graph[9];
629
630 graph[9].accessible = new Position[5];
631 graph[9].accessible[0] = graph[8];
632 graph[9].accessible[1] = graph[10];
633 graph[9].accessible[2] = graph[12];
634 graph[9].accessible[3] = graph[38];
635 graph[9].accessible[4] = graph[39];
636
637 graph[10].accessible = new Position[2];
638 graph[10].accessible[0] = graph[9];
639 graph[10].accessible[1] = graph[11];
```

```
640
641     graph[11].accessible = new Position[2];
642     graph[11].accessible[0] = graph[10];
643     graph[11].accessible[1] = graph[40];
644
645     graph[12].accessible = new Position[2];
646     graph[12].accessible[0] = graph[9];
647     graph[12].accessible[1] = graph[13];
648
649     graph[13].accessible = new Position[3];
650     graph[13].accessible[0] = graph[12];
651     graph[13].accessible[1] = graph[14];
652     graph[13].accessible[2] = graph[37];
653
654     graph[14].accessible = new Position[4];
655     graph[14].accessible[0] = graph[13];
656     graph[14].accessible[1] = graph[15];
657     graph[14].accessible[2] = graph[35];
658     graph[14].accessible[3] = graph[36];
659
660     graph[15].accessible = new Position[3];
661     graph[15].accessible[0] = graph[14];
662     graph[15].accessible[1] = graph[16];
663     graph[15].accessible[2] = graph[34];
664
665     graph[16].accessible = new Position[4];
666     graph[16].accessible[0] = graph[15];
667     graph[16].accessible[1] = graph[17];
668     graph[16].accessible[2] = graph[32];
669     graph[16].accessible[3] = graph[33];
670
671     graph[17].accessible = new Position[3];
672     graph[17].accessible[0] = graph[16];
673     graph[17].accessible[1] = graph[18];
674     graph[17].accessible[2] = graph[31];
675
676     graph[18].accessible = new Position[3];
677     graph[18].accessible[0] = graph[17];
678     graph[18].accessible[1] = graph[19];
679     graph[18].accessible[2] = graph[30];
680
681     graph[19].accessible = new Position[3];
682     graph[19].accessible[0] = graph[18];
683     graph[19].accessible[1] = graph[20];
684     graph[19].accessible[2] = graph[29];
685
686     graph[20].accessible = new Position[4];
687     graph[20].accessible[0] = graph[19];
688     graph[20].accessible[1] = graph[21];
689     graph[20].accessible[2] = graph[27];
690     graph[20].accessible[3] = graph[28];
691
692     graph[21].accessible = new Position[3];
693     graph[21].accessible[0] = graph[20];
694     graph[21].accessible[1] = graph[22];
695     graph[21].accessible[2] = graph[26];
696
697     graph[22].accessible = new Position[3];
698     graph[22].accessible[0] = graph[21];
699     graph[22].accessible[1] = graph[23];
700     graph[22].accessible[2] = graph[25];
701
702     graph[23].accessible = new Position[3];
703     graph[23].accessible[0] = graph[3];
704     graph[23].accessible[1] = graph[22];
705     graph[23].accessible[2] = graph[24];
706
707     graph[24].accessible = new Position[2];
708     graph[24].accessible[0] = graph[23];
709     graph[24].accessible[1] = graph[28];
710
```

```
711     graph[25].accessible = new Position[1];
712     graph[25].accessible[0] = graph[22];
713
714     graph[26].accessible = new Position[1];
715     graph[26].accessible[0] = graph[21];
716
717     graph[27].accessible = new Position[1];
718     graph[27].accessible[0] = graph[20];
719
720     graph[28].accessible = new Position[3];
721     graph[28].accessible[0] = graph[3];
722     graph[28].accessible[1] = graph[20];
723     graph[28].accessible[2] = graph[24];
724
725     graph[29].accessible = new Position[1];
726     graph[29].accessible[0] = graph[19];
727
728     graph[30].accessible = new Position[1];
729     graph[30].accessible[0] = graph[18];
730
731     graph[31].accessible = new Position[1];
732     graph[31].accessible[0] = graph[17];
733
734     graph[32].accessible = new Position[1];
735     graph[32].accessible[0] = graph[16];
736
737     graph[33].accessible = new Position[1];
738     graph[33].accessible[0] = graph[16];
739
740     graph[34].accessible = new Position[1];
741     graph[34].accessible[0] = graph[15];
742
743     graph[35].accessible = new Position[1];
744     graph[35].accessible[0] = graph[14];
745
746     graph[36].accessible = new Position[1];
747     graph[36].accessible[0] = graph[14];
748
749     graph[37].accessible = new Position[1];
750     graph[37].accessible[0] = graph[13];
751
752     graph[38].accessible = new Position[1];
753     graph[38].accessible[0] = graph[9];
754
755     graph[39].accessible = new Position[1];
756     graph[39].accessible[0] = graph[9];
757
758     graph[40].accessible = new Position[1];
759     graph[40].accessible[0] = graph[11];
760
761     graph[41].accessible = new Position[1];
762     graph[41].accessible[0] = graph[6];
763
764     graph[42].accessible = new Position[1];
765     graph[42].accessible[0] = graph[6];
766
767     graph[43].accessible = new Position[1];
768     graph[43].accessible[0] = graph[5];
769
770     graph[44].accessible = new Position[1];
771     graph[44].accessible[0] = graph[5];
772
773     graph[45].accessible = new Position[1];
774     graph[45].accessible[0] = graph[4];
775
776     graph[46].accessible = new Position[1];
777     graph[46].accessible[0] = graph[4];
778
779     graph[47].accessible = new Position[2];
780     graph[47].accessible[0] = graph[48];
781     graph[47].accessible[1] = graph[169];
```

```
782
783     graph[48].accessible = new Position[2];
784     graph[48].accessible[0] = graph[47];
785     graph[48].accessible[1] = graph[49];
786
787     graph[49].accessible = new Position[3];
788     graph[49].accessible[0] = graph[48];
789     graph[49].accessible[1] = graph[50];
790     graph[49].accessible[2] = graph[93];
791
792     graph[50].accessible = new Position[2];
793     graph[50].accessible[0] = graph[49];
794     graph[50].accessible[1] = graph[51];
795
796     graph[51].accessible = new Position[3];
797     graph[51].accessible[0] = graph[50];
798     graph[51].accessible[1] = graph[52];
799     graph[51].accessible[2] = graph[94];
800
801     graph[52].accessible = new Position[3];
802     graph[52].accessible[0] = graph[51];
803     graph[52].accessible[1] = graph[53];
804     graph[52].accessible[2] = graph[95];
805
806     graph[53].accessible = new Position[3];
807     graph[53].accessible[0] = graph[52];
808     graph[53].accessible[1] = graph[54];
809     graph[53].accessible[2] = graph[96];
810
811     graph[54].accessible = new Position[2];
812     graph[54].accessible[0] = graph[53];
813     graph[54].accessible[1] = graph[55];
814
815     graph[55].accessible = new Position[3];
816     graph[55].accessible[0] = graph[54];
817     graph[55].accessible[1] = graph[56];
818     graph[55].accessible[2] = graph[97];
819
820     graph[56].accessible = new Position[3];
821     graph[56].accessible[0] = graph[55];
822     graph[56].accessible[1] = graph[57];
823     graph[56].accessible[2] = graph[91];
824
825     graph[57].accessible = new Position[3];
826     graph[57].accessible[0] = graph[56];
827     graph[57].accessible[1] = graph[58];
828     graph[57].accessible[2] = graph[100];
829
830     graph[58].accessible = new Position[2];
831     graph[58].accessible[0] = graph[57];
832     graph[58].accessible[1] = graph[59];
833
834     graph[59].accessible = new Position[4];
835     graph[59].accessible[0] = graph[58];
836     graph[59].accessible[1] = graph[60];
837     graph[59].accessible[2] = graph[98];
838     graph[59].accessible[3] = graph[99];
839
840     graph[60].accessible = new Position[4];
841     graph[60].accessible[0] = graph[59];
842     graph[60].accessible[1] = graph[61];
843     graph[60].accessible[2] = graph[101];
844     graph[60].accessible[3] = graph[111];
845
846     graph[61].accessible = new Position[3];
847     graph[61].accessible[0] = graph[60];
848     graph[61].accessible[1] = graph[62];
849     graph[61].accessible[2] = graph[112];
850
851     graph[62].accessible = new Position[3];
852     graph[62].accessible[0] = graph[61];
```

```
853     graph[62].accessible[1] = graph[63];
854     graph[62].accessible[2] = graph[113];
855
856     graph[63].accessible = new Position[3];
857     graph[63].accessible[0] = graph[62];
858     graph[63].accessible[1] = graph[64];
859     graph[63].accessible[2] = graph[114];
860
861     graph[64].accessible = new Position[4];
862     graph[64].accessible[0] = graph[63];
863     graph[64].accessible[1] = graph[65];
864     graph[64].accessible[2] = graph[68];
865     graph[64].accessible[3] = graph[115];
866
867     graph[65].accessible = new Position[3];
868     graph[65].accessible[0] = graph[64];
869     graph[65].accessible[1] = graph[66];
870     graph[65].accessible[2] = graph[116];
871
872     graph[66].accessible = new Position[2];
873     graph[66].accessible[0] = graph[65];
874     graph[66].accessible[1] = graph[67];
875
876     graph[67].accessible = new Position[3];
877     graph[67].accessible[0] = graph[66];
878     graph[67].accessible[1] = graph[92];
879     graph[67].accessible[2] = graph[117];
880
881     graph[68].accessible = new Position[2];
882     graph[68].accessible[0] = graph[64];
883     graph[68].accessible[1] = graph[69];
884
885     graph[69].accessible = new Position[3];
886     graph[69].accessible[0] = graph[68];
887     graph[69].accessible[1] = graph[70];
888     graph[69].accessible[2] = graph[102];
889
890     graph[70].accessible = new Position[3];
891     graph[70].accessible[0] = graph[69];
892     graph[70].accessible[1] = graph[71];
893     graph[70].accessible[2] = graph[103];
894
895     graph[71].accessible = new Position[2];
896     graph[71].accessible[0] = graph[70];
897     graph[71].accessible[1] = graph[72];
898
899     graph[72].accessible = new Position[2];
900     graph[72].accessible[0] = graph[71];
901     graph[72].accessible[1] = graph[73];
902
903     graph[73].accessible = new Position[3];
904     graph[73].accessible[0] = graph[72];
905     graph[73].accessible[1] = graph[74];
906     graph[73].accessible[2] = graph[104];
907
908     graph[74].accessible = new Position[3];
909     graph[74].accessible[0] = graph[73];
910     graph[74].accessible[1] = graph[75];
911     graph[74].accessible[2] = graph[105];
912
913     graph[75].accessible = new Position[3];
914     graph[75].accessible[0] = graph[74];
915     graph[75].accessible[1] = graph[76];
916     graph[75].accessible[2] = graph[106];
917
918     graph[76].accessible = new Position[3];
919     graph[76].accessible[0] = graph[75];
920     graph[76].accessible[1] = graph[77];
921     graph[76].accessible[2] = graph[107];
922
923     graph[77].accessible = new Position[3];
```

```
924     graph[77].accessible[0] = graph[76];
925     graph[77].accessible[1] = graph[78];
926     graph[77].accessible[2] = graph[108];
927
928     graph[78].accessible = new Position[2];
929     graph[78].accessible[0] = graph[77];
930     graph[78].accessible[1] = graph[79];
931
932     graph[79].accessible = new Position[3];
933     graph[79].accessible[0] = graph[78];
934     graph[79].accessible[1] = graph[80];
935     graph[79].accessible[2] = graph[108];
936
937     graph[80].accessible = new Position[3];
938     graph[80].accessible[0] = graph[79];
939     graph[80].accessible[1] = graph[81];
940     graph[80].accessible[2] = graph[109];
941
942     graph[81].accessible = new Position[2];
943     graph[81].accessible[0] = graph[80];
944     graph[81].accessible[1] = graph[82];
945
946     graph[82].accessible = new Position[2];
947     graph[82].accessible[0] = graph[81];
948     graph[82].accessible[1] = graph[83];
949
950     graph[83].accessible = new Position[2];
951     graph[83].accessible[0] = graph[82];
952     graph[83].accessible[1] = graph[84];
953
954     graph[84].accessible = new Position[3];
955     graph[84].accessible[0] = graph[83];
956     graph[84].accessible[1] = graph[85];
957     graph[84].accessible[2] = graph[110];
958
959     graph[85].accessible = new Position[2];
960     graph[85].accessible[0] = graph[84];
961     graph[85].accessible[1] = graph[86];
962
963     graph[86].accessible = new Position[3];
964     graph[86].accessible[0] = graph[85];
965     graph[86].accessible[1] = graph[87];
966     graph[86].accessible[2] = graph[110];
967
968     graph[87].accessible = new Position[2];
969     graph[87].accessible[0] = graph[86];
970     graph[87].accessible[1] = graph[88];
971
972     graph[88].accessible = new Position[3];
973     graph[88].accessible[0] = graph[87];
974     graph[88].accessible[1] = graph[89];
975     graph[88].accessible[2] = graph[100];
976
977     graph[89].accessible = new Position[2];
978     graph[89].accessible[0] = graph[88];
979     graph[89].accessible[1] = graph[90];
980
981     graph[90].accessible = new Position[2];
982     graph[90].accessible[0] = graph[89];
983     graph[90].accessible[1] = graph[91];
984
985     graph[91].accessible = new Position[2];
986     graph[91].accessible[0] = graph[56];
987     graph[91].accessible[1] = graph[90];
988
989     graph[92].accessible = new Position[3];
990     graph[92].accessible[0] = graph[0];
991     graph[92].accessible[1] = graph[67];
992     graph[92].accessible[2] = graph[144];
993
994     graph[93].accessible = new Position[1];
```

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995         graph[93].accessible[0] = graph[49];
996
997         graph[94].accessible = new Position[1];
998         graph[94].accessible[0] = graph[51];
999
1000        graph[95].accessible = new Position[1];
1001        graph[95].accessible[0] = graph[52];
1002
1003        graph[96].accessible = new Position[1];
1004        graph[96].accessible[0] = graph[53];
1005
1006        graph[97].accessible = new Position[1];
1007        graph[97].accessible[0] = graph[55];
1008
1009        graph[98].accessible = new Position[1];
1010        graph[98].accessible[0] = graph[59];
1011
1012        graph[99].accessible = new Position[1];
1013        graph[99].accessible[0] = graph[59];
1014
1015        graph[100].accessible = new Position[2];
1016        graph[100].accessible[0] = graph[57];
1017        graph[100].accessible[1] = graph[88];
1018
1019        graph[101].accessible = new Position[2];
1020        graph[101].accessible[0] = graph[60];
1021        graph[101].accessible[1] = graph[63];
1022
1023        graph[102].accessible = new Position[1];
1024        graph[102].accessible[0] = graph[69];
1025
1026        graph[103].accessible = new Position[1];
1027        graph[103].accessible[0] = graph[70];
1028
1029        graph[104].accessible = new Position[1];
1030        graph[104].accessible[0] = graph[73];
1031
1032        graph[105].accessible = new Position[1];
1033        graph[105].accessible[0] = graph[74];
1034
1035        graph[106].accessible = new Position[1];
1036        graph[106].accessible[0] = graph[75];
1037
1038        graph[107].accessible = new Position[1];
1039        graph[107].accessible[0] = graph[76];
1040
1041        graph[108].accessible = new Position[2];
1042        graph[108].accessible[0] = graph[77];
1043        graph[108].accessible[1] = graph[79];
1044
1045        graph[109].accessible = new Position[1];
1046        graph[109].accessible[0] = graph[80];
1047
1048        graph[110].accessible = new Position[2];
1049        graph[110].accessible[0] = graph[84];
1050        graph[110].accessible[1] = graph[86];
1051
1052        graph[111].accessible = new Position[1];
1053        graph[111].accessible[0] = graph[60];
1054
1055        graph[112].accessible = new Position[1];
1056        graph[112].accessible[0] = graph[61];
1057
1058        graph[113].accessible = new Position[1];
1059        graph[113].accessible[0] = graph[62];
1060
1061        graph[114].accessible = new Position[1];
1062        graph[114].accessible[0] = graph[63];
1063
1064        graph[115].accessible = new Position[2];
1065        graph[115].accessible[0] = graph[64];
```

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1066     graph[115].accessible[1] = graph[116];
1067
1068     graph[116].accessible = new Position[2];
1069     graph[116].accessible[0] = graph[65];
1070     graph[116].accessible[1] = graph[115];
1071
1072     graph[117].accessible = new Position[2];
1073     graph[117].accessible[0] = graph[118];
1074     graph[117].accessible[1] = graph[67];
1075
1076     graph[118].accessible = new Position[2];
1077     graph[118].accessible[0] = graph[117];
1078     graph[118].accessible[1] = graph[119];
1079
1080     graph[119].accessible = new Position[2];
1081     graph[119].accessible[0] = graph[118];
1082     graph[119].accessible[1] = graph[120];
1083
1084     graph[120].accessible = new Position[3];
1085     graph[120].accessible[0] = graph[119];
1086     graph[120].accessible[1] = graph[121];
1087     graph[120].accessible[2] = graph[122];
1088
1089     graph[121].accessible = new Position[3];
1090     graph[121].accessible[0] = graph[120];
1091     graph[121].accessible[1] = graph[122];
1092     graph[121].accessible[2] = graph[144];
1093
1094     graph[122].accessible = new Position[3];
1095     graph[122].accessible[0] = graph[120];
1096     graph[122].accessible[1] = graph[121];
1097     graph[122].accessible[2] = graph[123];
1098
1099     graph[123].accessible = new Position[2];
1100     graph[123].accessible[0] = graph[122];
1101     graph[123].accessible[1] = graph[124];
1102
1103     graph[124].accessible = new Position[2];
1104     graph[124].accessible[0] = graph[123];
1105     graph[124].accessible[1] = graph[125];
1106
1107     graph[125].accessible = new Position[2];
1108     graph[125].accessible[0] = graph[124];
1109     graph[125].accessible[1] = graph[126];
1110
1111     graph[126].accessible = new Position[2];
1112     graph[126].accessible[0] = graph[125];
1113     graph[126].accessible[1] = graph[127];
1114
1115     graph[127].accessible = new Position[3];
1116     graph[127].accessible[0] = graph[126];
1117     graph[127].accessible[1] = graph[128];
1118     graph[127].accessible[2] = graph[130];
1119
1120     graph[128].accessible = new Position[3];
1121     graph[128].accessible[0] = graph[127];
1122     graph[128].accessible[1] = graph[129];
1123     graph[128].accessible[2] = graph[137];
1124
1125     graph[129].accessible = new Position[3];
1126     graph[129].accessible[0] = graph[128];
1127     graph[129].accessible[1] = graph[361];
1128     graph[129].accessible[2] = graph[362];
1129
1130     graph[130].accessible = new Position[3];
1131     graph[130].accessible[0] = graph[127];
1132     graph[130].accessible[1] = graph[131];
1133     graph[130].accessible[2] = graph[138];
1134
1135     graph[131].accessible = new Position[2];
1136     graph[131].accessible[0] = graph[130];
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1137     graph[131].accessible[1] = graph[132];
1138
1139     graph[132].accessible = new Position[4];
1140     graph[132].accessible[0] = graph[131];
1141     graph[132].accessible[1] = graph[133];
1142     graph[132].accessible[2] = graph[139];
1143     graph[132].accessible[3] = graph[140];
1144
1145     graph[133].accessible = new Position[3];
1146     graph[133].accessible[0] = graph[132];
1147     graph[133].accessible[1] = graph[134];
1148     graph[133].accessible[2] = graph[141];
1149
1150     graph[134].accessible = new Position[4];
1151     graph[134].accessible[0] = graph[133];
1152     graph[134].accessible[1] = graph[135];
1153     graph[134].accessible[2] = graph[142];
1154     graph[134].accessible[3] = graph[143];
1155
1156     graph[135].accessible = new Position[2];
1157     graph[135].accessible[0] = graph[134];
1158     graph[135].accessible[1] = graph[136];
1159
1160     graph[136].accessible = new Position[1];
1161     graph[136].accessible[0] = graph[135];
1162
1163     graph[137].accessible = new Position[2];
1164     graph[137].accessible[0] = graph[128];
1165     graph[137].accessible[1] = graph[138];
1166
1167     graph[138].accessible = new Position[2];
1168     graph[138].accessible[0] = graph[130];
1169     graph[138].accessible[1] = graph[137];
1170
1171     graph[139].accessible = new Position[1];
1172     graph[139].accessible[0] = graph[132];
1173
1174     graph[140].accessible = new Position[1];
1175     graph[140].accessible[0] = graph[132];
1176
1177     graph[141].accessible = new Position[1];
1178     graph[141].accessible[0] = graph[133];
1179
1180     graph[142].accessible = new Position[1];
1181     graph[142].accessible[0] = graph[134];
1182
1183     graph[143].accessible = new Position[1];
1184     graph[143].accessible[0] = graph[134];
1185
1186     graph[144].accessible = new Position[2];
1187     graph[144].accessible[0] = graph[121];
1188     graph[144].accessible[1] = graph[92];
1189
1190     graph[145].accessible = new Position[2];
1191     graph[145].accessible[0] = graph[226];
1192     graph[145].accessible[1] = graph[146];
1193
1194     graph[146].accessible = new Position[3];
1195     graph[146].accessible[0] = graph[145];
1196     graph[146].accessible[1] = graph[147];
1197     graph[146].accessible[2] = graph[178];
1198
1199     graph[147].accessible = new Position[3];
1200     graph[147].accessible[0] = graph[146];
1201     graph[147].accessible[1] = graph[148];
1202     graph[147].accessible[2] = graph[179];
1203
1204     graph[148].accessible = new Position[3];
1205     graph[148].accessible[0] = graph[147];
1206     graph[148].accessible[1] = graph[149];
1207     graph[148].accessible[2] = graph[180];
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1208
1209     graph[149].accessible = new Position[3];
1210     graph[149].accessible[0] = graph[148];
1211     graph[149].accessible[1] = graph[150];
1212     graph[149].accessible[2] = graph[181];
1213
1214     graph[150].accessible = new Position[3];
1215     graph[150].accessible[0] = graph[149];
1216     graph[150].accessible[1] = graph[151];
1217     graph[150].accessible[2] = graph[182];
1218
1219     graph[151].accessible = new Position[2];
1220     graph[151].accessible[0] = graph[150];
1221     graph[151].accessible[1] = graph[152];
1222
1223     graph[152].accessible = new Position[3];
1224     graph[152].accessible[0] = graph[151];
1225     graph[152].accessible[1] = graph[153];
1226     graph[152].accessible[2] = graph[159];
1227
1228     graph[153].accessible = new Position[3];
1229     graph[153].accessible[0] = graph[152];
1230     graph[153].accessible[1] = graph[154];
1231     graph[153].accessible[2] = graph[183];
1232
1233     graph[154].accessible = new Position[2];
1234     graph[154].accessible[0] = graph[153];
1235     graph[154].accessible[1] = graph[155];
1236
1237     graph[155].accessible = new Position[4];
1238     graph[155].accessible[0] = graph[154];
1239     graph[155].accessible[1] = graph[156];
1240     graph[155].accessible[2] = graph[184];
1241     graph[155].accessible[3] = graph[185];
1242
1243     graph[156].accessible = new Position[2];
1244     graph[156].accessible[0] = graph[155];
1245     graph[156].accessible[1] = graph[157];
1246
1247     graph[157].accessible = new Position[3];
1248     graph[157].accessible[0] = graph[156];
1249     graph[157].accessible[1] = graph[158];
1250     graph[157].accessible[2] = graph[186];
1251
1252     graph[158].accessible = new Position[3];
1253     graph[158].accessible[0] = graph[157];
1254     graph[158].accessible[1] = graph[186];
1255     graph[158].accessible[2] = graph[368];
1256
1257     graph[159].accessible = new Position[3];
1258     graph[159].accessible[0] = graph[152];
1259     graph[159].accessible[1] = graph[160];
1260     graph[159].accessible[2] = graph[206];
1261
1262     graph[160].accessible = new Position[5];
1263     graph[160].accessible[0] = graph[204];
1264     graph[160].accessible[1] = graph[205];
1265     graph[160].accessible[2] = graph[159];
1266     graph[160].accessible[3] = graph[161];
1267     graph[160].accessible[4] = graph[177];
1268
1269     graph[161].accessible = new Position[2];
1270     graph[161].accessible[0] = graph[160];
1271     graph[161].accessible[1] = graph[162];
1272
1273     graph[162].accessible = new Position[2];
1274     graph[162].accessible[0] = graph[161];
1275     graph[162].accessible[1] = graph[163];
1276
1277     graph[163].accessible = new Position[2];
1278     graph[163].accessible[0] = graph[162];
```

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1279     graph[163].accessible[1] = graph[164];
1280
1281     graph[164].accessible = new Position[3];
1282     graph[164].accessible[0] = graph[163];
1283     graph[164].accessible[1] = graph[165];
1284     graph[164].accessible[2] = graph[184];
1285
1286     graph[165].accessible = new Position[2];
1287     graph[165].accessible[0] = graph[164];
1288     graph[165].accessible[1] = graph[166];
1289
1290     graph[166].accessible = new Position[2];
1291     graph[166].accessible[0] = graph[165];
1292     graph[166].accessible[1] = graph[167];
1293
1294     graph[167].accessible = new Position[4];
1295     graph[167].accessible[0] = graph[166];
1296     graph[167].accessible[1] = graph[168];
1297     graph[167].accessible[2] = graph[170];
1298     graph[167].accessible[3] = graph[188];
1299
1300     graph[168].accessible = new Position[3];
1301     graph[168].accessible[0] = graph[167];
1302     graph[168].accessible[1] = graph[169];
1303     graph[168].accessible[2] = graph[187];
1304
1305     graph[169].accessible = new Position[2];
1306     graph[169].accessible[0] = graph[47];
1307     graph[169].accessible[1] = graph[168];
1308
1309     graph[170].accessible = new Position[3];
1310     graph[170].accessible[0] = graph[167];
1311     graph[170].accessible[1] = graph[171];
1312     graph[170].accessible[2] = graph[189];
1313
1314     graph[171].accessible = new Position[4];
1315     graph[171].accessible[0] = graph[170];
1316     graph[171].accessible[1] = graph[172];
1317     graph[171].accessible[2] = graph[190];
1318     graph[171].accessible[3] = graph[191];
1319
1320     graph[172].accessible = new Position[3];
1321     graph[172].accessible[0] = graph[171];
1322     graph[172].accessible[1] = graph[173];
1323     graph[172].accessible[2] = graph[192];
1324
1325     graph[173].accessible = new Position[4];
1326     graph[173].accessible[0] = graph[172];
1327     graph[173].accessible[1] = graph[174];
1328     graph[173].accessible[2] = graph[193];
1329     graph[173].accessible[3] = graph[194];
1330
1331     graph[174].accessible = new Position[7];
1332     graph[174].accessible[0] = graph[173];
1333     graph[174].accessible[1] = graph[175];
1334     graph[174].accessible[2] = graph[195];
1335     graph[174].accessible[3] = graph[196];
1336     graph[174].accessible[4] = graph[197];
1337     graph[174].accessible[5] = graph[198];
1338     graph[174].accessible[6] = graph[199];
1339
1340     graph[175].accessible = new Position[4];
1341     graph[175].accessible[0] = graph[174];
1342     graph[175].accessible[1] = graph[176];
1343     graph[175].accessible[2] = graph[192];
1344     graph[175].accessible[3] = graph[200];
1345
1346     graph[176].accessible = new Position[3];
1347     graph[176].accessible[0] = graph[175];
1348     graph[176].accessible[1] = graph[177];
1349     graph[176].accessible[2] = graph[201];
```

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1350
1351     graph[177].accessible = new Position[4];
1352     graph[177].accessible[0] = graph[160];
1353     graph[177].accessible[1] = graph[176];
1354     graph[177].accessible[2] = graph[202];
1355     graph[177].accessible[3] = graph[203];
1356
1357     graph[178].accessible = new Position[1];
1358     graph[178].accessible[0] = graph[146];
1359
1360     graph[179].accessible = new Position[1];
1361     graph[179].accessible[0] = graph[147];
1362
1363     graph[180].accessible = new Position[1];
1364     graph[180].accessible[0] = graph[148];
1365
1366     graph[181].accessible = new Position[1];
1367     graph[181].accessible[0] = graph[149];
1368
1369     graph[182].accessible = new Position[1];
1370     graph[182].accessible[0] = graph[150];
1371
1372     graph[183].accessible = new Position[1];
1373     graph[183].accessible[0] = graph[153];
1374
1375     graph[184].accessible = new Position[2];
1376     graph[184].accessible[0] = graph[155];
1377     graph[184].accessible[1] = graph[164];
1378
1379     graph[185].accessible = new Position[1];
1380     graph[185].accessible[0] = graph[155];
1381
1382     graph[186].accessible = new Position[2];
1383     graph[186].accessible[0] = graph[157];
1384     graph[186].accessible[1] = graph[158];
1385
1386     graph[187].accessible = new Position[1];
1387     graph[187].accessible[0] = graph[168];
1388
1389     graph[188].accessible = new Position[1];
1390     graph[188].accessible[0] = graph[167];
1391
1392     graph[189].accessible = new Position[1];
1393     graph[189].accessible[0] = graph[170];
1394
1395     graph[190].accessible = new Position[1];
1396     graph[190].accessible[0] = graph[171];
1397
1398     graph[191].accessible = new Position[1];
1399     graph[191].accessible[0] = graph[171];
1400
1401     graph[192].accessible = new Position[2];
1402     graph[192].accessible[0] = graph[172];
1403     graph[192].accessible[1] = graph[175];
1404
1405     graph[193].accessible = new Position[1];
1406     graph[193].accessible[0] = graph[173];
1407
1408     graph[194].accessible = new Position[1];
1409     graph[194].accessible[0] = graph[173];
1410
1411     graph[195].accessible = new Position[1];
1412     graph[195].accessible[0] = graph[174];
1413
1414     graph[196].accessible = new Position[1];
1415     graph[196].accessible[0] = graph[174];
1416
1417     graph[197].accessible = new Position[1];
1418     graph[197].accessible[0] = graph[174];
1419
1420     graph[198].accessible = new Position[1];
```

```
1421     graph[198].accessible[0] = graph[174];
1422
1423     graph[199].accessible = new Position[1];
1424     graph[199].accessible[0] = graph[174];
1425
1426     graph[200].accessible = new Position[1];
1427     graph[200].accessible[0] = graph[175];
1428
1429     graph[201].accessible = new Position[1];
1430     graph[201].accessible[0] = graph[176];
1431
1432     graph[202].accessible = new Position[1];
1433     graph[202].accessible[0] = graph[177];
1434
1435     graph[203].accessible = new Position[1];
1436     graph[203].accessible[0] = graph[177];
1437
1438     graph[204].accessible = new Position[1];
1439     graph[204].accessible[0] = graph[160];
1440
1441     graph[205].accessible = new Position[1];
1442     graph[205].accessible[0] = graph[160];
1443
1444     graph[206].accessible = new Position[1];
1445     graph[206].accessible[0] = graph[159];
1446
1447     graph[207].accessible = new Position[2];
1448     graph[207].accessible[0] = graph[208];
1449     graph[207].accessible[1] = graph[296];
1450
1451     graph[208].accessible = new Position[2];
1452     graph[208].accessible[0] = graph[207];
1453     graph[208].accessible[1] = graph[209];
1454
1455     graph[209].accessible = new Position[4];
1456     graph[209].accessible[0] = graph[208];
1457     graph[209].accessible[1] = graph[210];
1458     graph[209].accessible[2] = graph[240];
1459     graph[209].accessible[3] = graph[284];
1460
1461     graph[210].accessible = new Position[4];
1462     graph[210].accessible[0] = graph[209];
1463     graph[210].accessible[1] = graph[211];
1464     graph[210].accessible[2] = graph[283];
1465     graph[210].accessible[3] = graph[241];
1466
1467     graph[211].accessible = new Position[3];
1468     graph[211].accessible[0] = graph[210];
1469     graph[211].accessible[1] = graph[212];
1470     graph[211].accessible[2] = graph[282];
1471
1472     graph[212].accessible = new Position[3];
1473     graph[212].accessible[0] = graph[211];
1474     graph[212].accessible[1] = graph[213];
1475     graph[212].accessible[2] = graph[281];
1476
1477     graph[213].accessible = new Position[3];
1478     graph[213].accessible[0] = graph[212];
1479     graph[213].accessible[1] = graph[214];
1480     graph[213].accessible[2] = graph[280];
1481
1482     graph[214].accessible = new Position[3];
1483     graph[214].accessible[0] = graph[213];
1484     graph[214].accessible[1] = graph[215];
1485     graph[214].accessible[2] = graph[279];
1486
1487     graph[215].accessible = new Position[4];
1488     graph[215].accessible[0] = graph[214];
1489     graph[215].accessible[1] = graph[216];
1490     graph[215].accessible[2] = graph[278];
1491     graph[215].accessible[3] = graph[270];
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1492
1493     graph[216].accessible = new Position[3];
1494     graph[216].accessible[0] = graph[215];
1495     graph[216].accessible[1] = graph[217];
1496     graph[216].accessible[2] = graph[277];
1497
1498     graph[217].accessible = new Position[7];
1499     graph[217].accessible[0] = graph[216];
1500     graph[217].accessible[1] = graph[218];
1501     graph[217].accessible[2] = graph[272];
1502     graph[217].accessible[3] = graph[273];
1503     graph[217].accessible[4] = graph[274];
1504     graph[217].accessible[5] = graph[275];
1505     graph[217].accessible[6] = graph[276];
1506
1507     graph[218].accessible = new Position[3];
1508     graph[218].accessible[0] = graph[217];
1509     graph[218].accessible[1] = graph[219];
1510     graph[218].accessible[2] = graph[271];
1511
1512     graph[219].accessible = new Position[3];
1513     graph[219].accessible[0] = graph[218];
1514     graph[219].accessible[1] = graph[220];
1515     graph[219].accessible[2] = graph[269];
1516
1517     graph[220].accessible = new Position[3];
1518     graph[220].accessible[0] = graph[219];
1519     graph[220].accessible[1] = graph[221];
1520     graph[220].accessible[2] = graph[268];
1521
1522     graph[221].accessible = new Position[3];
1523     graph[221].accessible[0] = graph[220];
1524     graph[221].accessible[1] = graph[222];
1525     graph[221].accessible[2] = graph[267];
1526
1527     graph[222].accessible = new Position[4];
1528     graph[222].accessible[0] = graph[221];
1529     graph[222].accessible[1] = graph[223];
1530     graph[222].accessible[2] = graph[265];
1531     graph[222].accessible[3] = graph[266];
1532
1533     graph[223].accessible = new Position[4];
1534     graph[223].accessible[0] = graph[222];
1535     graph[223].accessible[1] = graph[224];
1536     graph[223].accessible[2] = graph[247];
1537     graph[223].accessible[3] = graph[264];
1538
1539     graph[224].accessible = new Position[5];
1540     graph[224].accessible[0] = graph[223];
1541     graph[224].accessible[1] = graph[225];
1542     graph[224].accessible[2] = graph[227];
1543     graph[224].accessible[3] = graph[247];
1544     graph[224].accessible[4] = graph[263];
1545
1546     graph[225].accessible = new Position[3];
1547     graph[225].accessible[0] = graph[224];
1548     graph[225].accessible[1] = graph[226];
1549     graph[225].accessible[2] = graph[262];
1550
1551     graph[226].accessible = new Position[2];
1552     graph[226].accessible[0] = graph[225];
1553     graph[226].accessible[1] = graph[145];
1554
1555     graph[227].accessible = new Position[4];
1556     graph[227].accessible[0] = graph[224];
1557     graph[227].accessible[1] = graph[223];
1558     graph[227].accessible[2] = graph[247];
1559     graph[227].accessible[3] = graph[261];
1560
1561     graph[228].accessible = new Position[4];
1562     graph[228].accessible[0] = graph[227];
```

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1563     graph[228].accessible[1] = graph[229];
1564     graph[228].accessible[2] = graph[259];
1565     graph[228].accessible[3] = graph[260];
1566
1567     graph[229].accessible = new Position[3];
1568     graph[229].accessible[0] = graph[228];
1569     graph[229].accessible[1] = graph[230];
1570     graph[229].accessible[2] = graph[258];
1571
1572     graph[230].accessible = new Position[4];
1573     graph[230].accessible[0] = graph[229];
1574     graph[230].accessible[1] = graph[231];
1575     graph[230].accessible[2] = graph[257];
1576     graph[230].accessible[3] = graph[256];
1577
1578     graph[231].accessible = new Position[4];
1579     graph[231].accessible[0] = graph[230];
1580     graph[231].accessible[1] = graph[232];
1581     graph[231].accessible[2] = graph[255];
1582     graph[231].accessible[3] = graph[257];
1583
1584     graph[232].accessible = new Position[3];
1585     graph[232].accessible[0] = graph[231];
1586     graph[232].accessible[1] = graph[233];
1587     graph[232].accessible[2] = graph[254];
1588
1589     graph[233].accessible = new Position[3];
1590     graph[233].accessible[0] = graph[232];
1591     graph[233].accessible[1] = graph[234];
1592     graph[233].accessible[2] = graph[253];
1593
1594     graph[234].accessible = new Position[3];
1595     graph[234].accessible[0] = graph[233];
1596     graph[234].accessible[1] = graph[235];
1597     graph[234].accessible[2] = graph[236];
1598
1599     graph[235].accessible = new Position[2];
1600     graph[235].accessible[0] = graph[234];
1601     graph[235].accessible[1] = graph[238];
1602
1603     graph[236].accessible = new Position[3];
1604     graph[236].accessible[0] = graph[234];
1605     graph[236].accessible[1] = graph[237];
1606     graph[236].accessible[2] = graph[252];
1607
1608     graph[237].accessible = new Position[2];
1609     graph[237].accessible[0] = graph[236];
1610     graph[237].accessible[1] = graph[238];
1611
1612     graph[238].accessible = new Position[3];
1613     graph[238].accessible[0] = graph[237];
1614     graph[238].accessible[1] = graph[239];
1615     graph[238].accessible[2] = graph[251];
1616
1617     graph[239].accessible = new Position[4];
1618     graph[239].accessible[0] = graph[238];
1619     graph[239].accessible[1] = graph[240];
1620     graph[239].accessible[2] = graph[249];
1621     graph[239].accessible[3] = graph[250];
1622
1623     graph[240].accessible = new Position[3];
1624     graph[240].accessible[0] = graph[239];
1625     graph[240].accessible[1] = graph[209];
1626     graph[240].accessible[2] = graph[248];
1627
1628     graph[241].accessible = new Position[2];
1629     graph[241].accessible[0] = graph[210];
1630     graph[241].accessible[1] = graph[242];
1631
1632     graph[242].accessible = new Position[2];
1633     graph[242].accessible[0] = graph[241];
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1634     graph[242].accessible[1] = graph[243];
1635
1636     graph[243].accessible = new Position[2];
1637     graph[243].accessible[0] = graph[242];
1638     graph[243].accessible[1] = graph[244];
1639
1640     graph[244].accessible = new Position[2];
1641     graph[244].accessible[0] = graph[243];
1642     graph[244].accessible[1] = graph[245];
1643
1644     graph[245].accessible = new Position[2];
1645     graph[245].accessible[0] = graph[244];
1646     graph[245].accessible[1] = graph[246];
1647
1648     graph[246].accessible = new Position[2];
1649     graph[246].accessible[0] = graph[245];
1650     graph[246].accessible[1] = graph[247];
1651
1652     graph[247].accessible = new Position[4];
1653     graph[247].accessible[0] = graph[223];
1654     graph[247].accessible[1] = graph[224];
1655     graph[247].accessible[2] = graph[227];
1656     graph[247].accessible[3] = graph[246];
1657
1658     graph[248].accessible = new Position[1];
1659     graph[248].accessible[0] = graph[240];
1660
1661     graph[249].accessible = new Position[1];
1662     graph[249].accessible[0] = graph[239];
1663
1664     graph[250].accessible = new Position[1];
1665     graph[250].accessible[0] = graph[239];
1666
1667     graph[251].accessible = new Position[1];
1668     graph[251].accessible[0] = graph[238];
1669
1670     graph[252].accessible = new Position[1];
1671     graph[252].accessible[0] = graph[236];
1672
1673     graph[253].accessible = new Position[1];
1674     graph[253].accessible[0] = graph[233];
1675
1676     graph[254].accessible = new Position[1];
1677     graph[254].accessible[0] = graph[232];
1678
1679     graph[255].accessible = new Position[1];
1680     graph[255].accessible[0] = graph[231];
1681
1682     graph[256].accessible = new Position[1];
1683     graph[256].accessible[0] = graph[230];
1684
1685     graph[257].accessible = new Position[1];
1686     graph[257].accessible[0] = graph[231];
1687
1688     graph[258].accessible = new Position[1];
1689     graph[258].accessible[0] = graph[229];
1690
1691     graph[259].accessible = new Position[1];
1692     graph[259].accessible[0] = graph[228];
1693
1694     graph[260].accessible = new Position[1];
1695     graph[260].accessible[0] = graph[228];
1696
1697     graph[261].accessible = new Position[1];
1698     graph[261].accessible[0] = graph[227];
1699
1700     graph[262].accessible = new Position[1];
1701     graph[262].accessible[0] = graph[225];
1702
1703     graph[263].accessible = new Position[1];
1704     graph[263].accessible[0] = graph[224];
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1705
1706     graph[264].accessible = new Position[1];
1707     graph[264].accessible[0] = graph[223];
1708
1709     graph[265].accessible = new Position[1];
1710     graph[265].accessible[0] = graph[222];
1711
1712     graph[266].accessible = new Position[1];
1713     graph[266].accessible[0] = graph[222];
1714
1715     graph[267].accessible = new Position[1];
1716     graph[267].accessible[0] = graph[221];
1717
1718     graph[268].accessible = new Position[1];
1719     graph[268].accessible[0] = graph[220];
1720
1721     graph[269].accessible = new Position[1];
1722     graph[269].accessible[0] = graph[219];
1723
1724     graph[270].accessible = new Position[1];
1725     graph[270].accessible[0] = graph[215];
1726
1727     graph[271].accessible = new Position[1];
1728     graph[271].accessible[0] = graph[218];
1729
1730     graph[272].accessible = new Position[1];
1731     graph[272].accessible[0] = graph[217];
1732
1733     graph[273].accessible = new Position[1];
1734     graph[273].accessible[0] = graph[217];
1735
1736     graph[274].accessible = new Position[1];
1737     graph[274].accessible[0] = graph[217];
1738
1739     graph[275].accessible = new Position[1];
1740     graph[275].accessible[0] = graph[217];
1741
1742     graph[276].accessible = new Position[1];
1743     graph[276].accessible[0] = graph[217];
1744
1745     graph[277].accessible = new Position[1];
1746     graph[277].accessible[0] = graph[216];
1747
1748     graph[278].accessible = new Position[1];
1749     graph[278].accessible[0] = graph[215];
1750
1751     graph[279].accessible = new Position[1];
1752     graph[279].accessible[0] = graph[214];
1753
1754     graph[280].accessible = new Position[1];
1755     graph[280].accessible[0] = graph[213];
1756
1757     graph[281].accessible = new Position[1];
1758     graph[281].accessible[0] = graph[212];
1759
1760     graph[282].accessible = new Position[1];
1761     graph[282].accessible[0] = graph[211];
1762
1763     graph[283].accessible = new Position[1];
1764     graph[283].accessible[0] = graph[210];
1765
1766     graph[284].accessible = new Position[1];
1767     graph[284].accessible[0] = graph[209];
1768
1769     graph[285].accessible = new Position[1];
1770     graph[285].accessible[0] = graph[286];
1771
1772     graph[286].accessible = new Position[2];
1773     graph[286].accessible[0] = graph[285];
1774     graph[286].accessible[1] = graph[287];
1775
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1776 graph[287].accessible = new Position[3];
1777 graph[287].accessible[0] = graph[286];
1778 graph[287].accessible[1] = graph[288];
1779 graph[287].accessible[2] = graph[306];
1780
1781 graph[288].accessible = new Position[3];
1782 graph[288].accessible[0] = graph[287];
1783 graph[288].accessible[1] = graph[289];
1784 graph[288].accessible[2] = graph[337];
1785
1786 graph[289].accessible = new Position[2];
1787 graph[289].accessible[0] = graph[288];
1788 graph[289].accessible[1] = graph[290];
1789
1790 graph[290].accessible = new Position[3];
1791 graph[290].accessible[0] = graph[289];
1792 graph[290].accessible[1] = graph[291];
1793 graph[290].accessible[2] = graph[324];
1794
1795 graph[291].accessible = new Position[2];
1796 graph[291].accessible[0] = graph[290];
1797 graph[291].accessible[1] = graph[292];
1798
1799 graph[292].accessible = new Position[2];
1800 graph[292].accessible[0] = graph[291];
1801 graph[292].accessible[1] = graph[293];
1802
1803 graph[293].accessible = new Position[2];
1804 graph[293].accessible[0] = graph[292];
1805 graph[293].accessible[1] = graph[294];
1806
1807 graph[294].accessible = new Position[4];
1808 graph[294].accessible[0] = graph[293];
1809 graph[294].accessible[1] = graph[295];
1810 graph[294].accessible[2] = graph[296];
1811 graph[294].accessible[3] = graph[297];
1812
1813 graph[295].accessible = new Position[2];
1814 graph[295].accessible[0] = graph[294];
1815 graph[295].accessible[1] = graph[296];
1816
1817 graph[296].accessible = new Position[3];
1818 graph[296].accessible[0] = graph[295];
1819 graph[296].accessible[1] = graph[207];
1820 graph[296].accessible[2] = graph[294];
1821
1822 graph[297].accessible = new Position[4];
1823 graph[297].accessible[0] = graph[294];
1824 graph[297].accessible[1] = graph[298];
1825 graph[297].accessible[2] = graph[335];
1826 graph[297].accessible[3] = graph[336];
1827
1828 graph[298].accessible = new Position[4];
1829 graph[298].accessible[0] = graph[297];
1830 graph[298].accessible[1] = graph[299];
1831 graph[298].accessible[2] = graph[333];
1832 graph[298].accessible[3] = graph[334];
1833
1834 graph[299].accessible = new Position[5];
1835 graph[299].accessible[0] = graph[298];
1836 graph[299].accessible[1] = graph[300];
1837 graph[299].accessible[2] = graph[330];
1838 graph[299].accessible[3] = graph[331];
1839 graph[299].accessible[4] = graph[332];
1840
1841 graph[300].accessible = new Position[5];
1842 graph[300].accessible[0] = graph[299];
1843 graph[300].accessible[1] = graph[301];
1844 graph[300].accessible[2] = graph[327];
1845 graph[300].accessible[3] = graph[328];
1846 graph[300].accessible[4] = graph[329];
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1847
1848     graph[301].accessible = new Position[4];
1849     graph[301].accessible[0] = graph[300];
1850     graph[301].accessible[1] = graph[302];
1851     graph[301].accessible[2] = graph[325];
1852     graph[301].accessible[3] = graph[326];
1853
1854     graph[302].accessible = new Position[5];
1855     graph[302].accessible[0] = graph[301];
1856     graph[302].accessible[1] = graph[303];
1857     graph[302].accessible[2] = graph[320];
1858     graph[302].accessible[3] = graph[322];
1859     graph[302].accessible[4] = graph[323];
1860
1861     graph[303].accessible = new Position[6];
1862     graph[303].accessible[0] = graph[302];
1863     graph[303].accessible[1] = graph[304];
1864     graph[303].accessible[2] = graph[316];
1865     graph[303].accessible[3] = graph[318];
1866     graph[303].accessible[4] = graph[319];
1867     graph[303].accessible[5] = graph[321];
1868
1869     graph[304].accessible = new Position[5];
1870     graph[304].accessible[0] = graph[303];
1871     graph[304].accessible[1] = graph[305];
1872     graph[304].accessible[2] = graph[314];
1873     graph[304].accessible[3] = graph[315];
1874     graph[304].accessible[4] = graph[317];
1875
1876     graph[305].accessible = new Position[4];
1877     graph[305].accessible[0] = graph[304];
1878     graph[305].accessible[1] = graph[306];
1879     graph[305].accessible[2] = graph[312];
1880     graph[305].accessible[3] = graph[313];
1881
1882     graph[306].accessible = new Position[7];
1883     graph[306].accessible[0] = graph[305];
1884     graph[306].accessible[1] = graph[287];
1885     graph[306].accessible[2] = graph[307];
1886     graph[306].accessible[3] = graph[308];
1887     graph[306].accessible[4] = graph[309];
1888     graph[306].accessible[5] = graph[310];
1889     graph[306].accessible[6] = graph[311];
1890
1891     graph[307].accessible = new Position[1];
1892     graph[307].accessible[0] = graph[306];
1893
1894     graph[308].accessible = new Position[1];
1895     graph[308].accessible[0] = graph[306];
1896
1897     graph[309].accessible = new Position[1];
1898     graph[309].accessible[0] = graph[306];
1899
1900     graph[310].accessible = new Position[1];
1901     graph[310].accessible[0] = graph[306];
1902
1903     graph[311].accessible = new Position[1];
1904     graph[311].accessible[0] = graph[306];
1905
1906     graph[312].accessible = new Position[1];
1907     graph[312].accessible[0] = graph[305];
1908
1909     graph[313].accessible = new Position[1];
1910     graph[313].accessible[0] = graph[305];
1911
1912     graph[314].accessible = new Position[1];
1913     graph[314].accessible[0] = graph[304];
1914
1915     graph[315].accessible = new Position[1];
1916     graph[315].accessible[0] = graph[304];
1917
```

```
1918     graph[316].accessible = new Position[1];
1919     graph[316].accessible[0] = graph[303];
1920
1921     graph[317].accessible = new Position[1];
1922     graph[317].accessible[0] = graph[304];
1923
1924     graph[318].accessible = new Position[1];
1925     graph[318].accessible[0] = graph[303];
1926
1927     graph[319].accessible = new Position[1];
1928     graph[319].accessible[0] = graph[303];
1929
1930     graph[320].accessible = new Position[1];
1931     graph[320].accessible[0] = graph[302];
1932
1933     graph[321].accessible = new Position[1];
1934     graph[321].accessible[0] = graph[303];
1935
1936     graph[322].accessible = new Position[1];
1937     graph[322].accessible[0] = graph[302];
1938
1939     graph[323].accessible = new Position[1];
1940     graph[323].accessible[0] = graph[302];
1941
1942     graph[324].accessible = new Position[1];
1943     graph[324].accessible[0] = graph[290];
1944
1945     graph[325].accessible = new Position[1];
1946     graph[325].accessible[0] = graph[301];
1947
1948     graph[326].accessible = new Position[1];
1949     graph[326].accessible[0] = graph[301];
1950
1951     graph[327].accessible = new Position[1];
1952     graph[327].accessible[0] = graph[300];
1953
1954     graph[328].accessible = new Position[1];
1955     graph[328].accessible[0] = graph[300];
1956
1957     graph[329].accessible = new Position[1];
1958     graph[329].accessible[0] = graph[300];
1959
1960     graph[330].accessible = new Position[1];
1961     graph[330].accessible[0] = graph[299];
1962
1963     graph[331].accessible = new Position[1];
1964     graph[331].accessible[0] = graph[299];
1965
1966     graph[332].accessible = new Position[1];
1967     graph[332].accessible[0] = graph[299];
1968
1969     graph[333].accessible = new Position[1];
1970     graph[333].accessible[0] = graph[298];
1971
1972     graph[334].accessible = new Position[1];
1973     graph[334].accessible[0] = graph[298];
1974
1975     graph[335].accessible = new Position[1];
1976     graph[335].accessible[0] = graph[297];
1977
1978     graph[336].accessible = new Position[1];
1979     graph[336].accessible[0] = graph[297];
1980
1981     graph[337].accessible = new Position[1];
1982     graph[337].accessible[0] = graph[288];
1983
1984     graph[338].accessible = new Position[2];
1985     graph[338].accessible[0] = graph[235];
1986     graph[338].accessible[1] = graph[339];
1987
1988     graph[339].accessible = new Position[3];
```

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1989     graph[339].accessible[0] = graph[338];
1990     graph[339].accessible[1] = graph[340];
1991     graph[339].accessible[2] = graph[341];
1992
1993     graph[340].accessible = new Position[2];
1994     graph[340].accessible[0] = graph[339];
1995     graph[340].accessible[1] = graph[350];
1996
1997     graph[341].accessible = new Position[4];
1998     graph[341].accessible[0] = graph[339];
1999     graph[341].accessible[1] = graph[342];
2000     graph[341].accessible[2] = graph[351];
2001     graph[341].accessible[3] = graph[352];
2002
2003     graph[342].accessible = new Position[3];
2004     graph[342].accessible[0] = graph[341];
2005     graph[342].accessible[1] = graph[343];
2006     graph[342].accessible[2] = graph[353];
2007
2008     graph[343].accessible = new Position[3];
2009     graph[343].accessible[0] = graph[342];
2010     graph[343].accessible[1] = graph[344];
2011     graph[343].accessible[2] = graph[353];
2012
2013     graph[344].accessible = new Position[3];
2014     graph[344].accessible[0] = graph[343];
2015     graph[344].accessible[1] = graph[345];
2016     graph[344].accessible[2] = graph[354];
2017
2018     graph[345].accessible = new Position[3];
2019     graph[345].accessible[0] = graph[344];
2020     graph[345].accessible[1] = graph[346];
2021     graph[345].accessible[2] = graph[355];
2022
2023     graph[346].accessible = new Position[2];
2024     graph[346].accessible[0] = graph[345];
2025     graph[346].accessible[1] = graph[347];
2026
2027     graph[347].accessible = new Position[2];
2028     graph[347].accessible[0] = graph[346];
2029     graph[347].accessible[1] = graph[348];
2030
2031     graph[348].accessible = new Position[2];
2032     graph[348].accessible[0] = graph[347];
2033     graph[348].accessible[1] = graph[349];
2034
2035     graph[349].accessible = new Position[2];
2036     graph[349].accessible[0] = graph[348];
2037     graph[349].accessible[1] = graph[356];
2038
2039     graph[350].accessible = new Position[1];
2040     graph[350].accessible[0] = graph[340];
2041
2042     graph[351].accessible = new Position[1];
2043     graph[351].accessible[0] = graph[341];
2044
2045     graph[352].accessible = new Position[1];
2046     graph[352].accessible[0] = graph[341];
2047
2048     graph[353].accessible = new Position[2];
2049     graph[353].accessible[0] = graph[342];
2050     graph[353].accessible[1] = graph[343];
2051
2052     graph[354].accessible = new Position[1];
2053     graph[354].accessible[0] = graph[344];
2054
2055     graph[355].accessible = new Position[1];
2056     graph[355].accessible[0] = graph[345];
2057
2058     graph[356].accessible = new Position[3];
2059     graph[356].accessible[0] = graph[349];
```

```
2060     graph[356].accessible[1] = graph[357];
2061     graph[356].accessible[2] = graph[373];
2062
2063     graph[357].accessible = new Position[2];
2064     graph[357].accessible[0] = graph[356];
2065     graph[357].accessible[1] = graph[358];
2066
2067     graph[358].accessible = new Position[2];
2068     graph[358].accessible[0] = graph[357];
2069     graph[358].accessible[1] = graph[372];
2070
2071     graph[359].accessible = new Position[2];
2072     graph[359].accessible[0] = graph[398];
2073     graph[359].accessible[1] = graph[360];
2074
2075     graph[360].accessible = new Position[2];
2076     graph[360].accessible[0] = graph[359];
2077     graph[360].accessible[1] = graph[361];
2078
2079     graph[361].accessible = new Position[2];
2080     graph[361].accessible[0] = graph[360];
2081     graph[361].accessible[1] = graph[129];
2082
2083     graph[362].accessible = new Position[2];
2084     graph[362].accessible[0] = graph[129];
2085     graph[362].accessible[1] = graph[363];
2086
2087     graph[363].accessible = new Position[3];
2088     graph[363].accessible[0] = graph[363];
2089     graph[363].accessible[1] = graph[364];
2090     graph[363].accessible[2] = graph[376];
2091
2092     graph[364].accessible = new Position[2];
2093     graph[364].accessible[0] = graph[363];
2094     graph[364].accessible[1] = graph[365];
2095
2096     graph[365].accessible = new Position[2];
2097     graph[365].accessible[0] = graph[364];
2098     graph[365].accessible[1] = graph[366];
2099
2100     graph[366].accessible = new Position[2];
2101     graph[366].accessible[0] = graph[365];
2102     graph[366].accessible[1] = graph[367];
2103
2104     graph[367].accessible = new Position[3];
2105     graph[367].accessible[0] = graph[366];
2106     graph[367].accessible[1] = graph[368];
2107     graph[367].accessible[2] = graph[369];
2108
2109     graph[368].accessible = new Position[2];
2110     graph[368].accessible[0] = graph[367];
2111     graph[368].accessible[1] = graph[158];
2112
2113     graph[369].accessible = new Position[4];
2114     graph[369].accessible[0] = graph[367];
2115     graph[369].accessible[1] = graph[370];
2116     graph[369].accessible[2] = graph[371];
2117     graph[369].accessible[3] = graph[373];
2118
2119     graph[370].accessible = new Position[2];
2120     graph[370].accessible[0] = graph[369];
2121     graph[370].accessible[1] = graph[371];
2122
2123     graph[371].accessible = new Position[3];
2124     graph[371].accessible[0] = graph[369];
2125     graph[371].accessible[1] = graph[370];
2126     graph[371].accessible[2] = graph[372];
2127
2128     graph[372].accessible = new Position[2];
2129     graph[372].accessible[0] = graph[373];
2130     graph[372].accessible[1] = graph[371];
```

```
2131
2132     graph[373].accessible = new Position[5];
2133     graph[373].accessible[0] = graph[356];
2134     graph[373].accessible[1] = graph[374];
2135     graph[373].accessible[2] = graph[375];
2136     graph[373].accessible[3] = graph[372];
2137     graph[373].accessible[4] = graph[369];
2138
2139     graph[374].accessible = new Position[1];
2140     graph[374].accessible[0] = graph[373];
2141
2142     graph[375].accessible = new Position[1];
2143     graph[375].accessible[0] = graph[373];
2144
2145     graph[376].accessible = new Position[1];
2146     graph[376].accessible[0] = graph[363];
2147
2148     graph[377].accessible = new Position[3];
2149     graph[377].accessible[0] = graph[358];
2150     graph[377].accessible[1] = graph[378];
2151     graph[377].accessible[2] = graph[398];
2152
2153     graph[378].accessible = new Position[4];
2154     graph[378].accessible[0] = graph[377];
2155     graph[378].accessible[1] = graph[379];
2156     graph[378].accessible[2] = graph[400];
2157     graph[378].accessible[3] = graph[401];
2158
2159     graph[379].accessible = new Position[3];
2160     graph[379].accessible[0] = graph[378];
2161     graph[379].accessible[1] = graph[380];
2162     graph[379].accessible[2] = graph[402];
2163
2164     graph[380].accessible = new Position[4];
2165     graph[380].accessible[0] = graph[379];
2166     graph[380].accessible[1] = graph[381];
2167     graph[380].accessible[2] = graph[400];
2168     graph[380].accessible[3] = graph[403];
2169
2170     graph[381].accessible = new Position[3];
2171     graph[381].accessible[0] = graph[380];
2172     graph[381].accessible[1] = graph[382];
2173     graph[381].accessible[2] = graph[404];
2174
2175     graph[382].accessible = new Position[5];
2176     graph[382].accessible[0] = graph[381];
2177     graph[382].accessible[1] = graph[383];
2178     graph[382].accessible[2] = graph[405];
2179     graph[382].accessible[3] = graph[406];
2180     graph[382].accessible[4] = graph[407];
2181
2182     graph[383].accessible = new Position[4];
2183     graph[383].accessible[0] = graph[382];
2184     graph[383].accessible[1] = graph[384];
2185     graph[383].accessible[2] = graph[408];
2186     graph[383].accessible[3] = graph[409];
2187
2188     graph[384].accessible = new Position[3];
2189     graph[384].accessible[0] = graph[383];
2190     graph[384].accessible[1] = graph[385];
2191     graph[384].accessible[2] = graph[410];
2192
2193     graph[385].accessible = new Position[3];
2194     graph[385].accessible[0] = graph[384];
2195     graph[385].accessible[1] = graph[386];
2196     graph[385].accessible[2] = graph[411];
2197
2198     graph[386].accessible = new Position[4];
2199     graph[386].accessible[0] = graph[385];
2200     graph[386].accessible[1] = graph[387];
2201     graph[386].accessible[2] = graph[412];
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2202     graph[386].accessible[3] = graph[411];
2203
2204     graph[387].accessible = new Position[4];
2205     graph[387].accessible[0] = graph[386];
2206     graph[387].accessible[1] = graph[388];
2207     graph[387].accessible[2] = graph[412];
2208     graph[387].accessible[3] = graph[413];
2209
2210     graph[388].accessible = new Position[3];
2211     graph[388].accessible[0] = graph[387];
2212     graph[388].accessible[1] = graph[389];
2213     graph[388].accessible[2] = graph[399];
2214
2215     graph[389].accessible = new Position[4];
2216     graph[389].accessible[0] = graph[388];
2217     graph[389].accessible[1] = graph[390];
2218     graph[389].accessible[2] = graph[414];
2219     graph[389].accessible[3] = graph[415];
2220
2221     graph[390].accessible = new Position[3];
2222     graph[390].accessible[0] = graph[389];
2223     graph[390].accessible[1] = graph[391];
2224     graph[390].accessible[2] = graph[416];
2225
2226     graph[391].accessible = new Position[4];
2227     graph[391].accessible[0] = graph[390];
2228     graph[391].accessible[1] = graph[392];
2229     graph[391].accessible[2] = graph[415];
2230     graph[391].accessible[3] = graph[417];
2231
2232     graph[392].accessible = new Position[3];
2233     graph[392].accessible[0] = graph[391];
2234     graph[392].accessible[1] = graph[393];
2235     graph[392].accessible[2] = graph[418];
2236
2237     graph[393].accessible = new Position[3];
2238     graph[393].accessible[0] = graph[392];
2239     graph[393].accessible[1] = graph[394];
2240     graph[393].accessible[2] = graph[417];
2241
2242     graph[394].accessible = new Position[4];
2243     graph[394].accessible[0] = graph[393];
2244     graph[394].accessible[1] = graph[395];
2245     graph[394].accessible[2] = graph[419];
2246     graph[394].accessible[3] = graph[420];
2247
2248     graph[395].accessible = new Position[4];
2249     graph[395].accessible[0] = graph[394];
2250     graph[395].accessible[1] = graph[396];
2251     graph[395].accessible[2] = graph[421];
2252     graph[395].accessible[3] = graph[422];
2253
2254     graph[396].accessible = new Position[3];
2255     graph[396].accessible[0] = graph[395];
2256     graph[396].accessible[1] = graph[397];
2257     graph[396].accessible[2] = graph[420];
2258
2259     graph[397].accessible = new Position[4];
2260     graph[397].accessible[0] = graph[396];
2261     graph[397].accessible[1] = graph[398];
2262     graph[397].accessible[2] = graph[422];
2263     graph[397].accessible[3] = graph[423];
2264
2265     graph[398].accessible = new Position[3];
2266     graph[398].accessible[0] = graph[359];
2267     graph[398].accessible[1] = graph[397];
2268     graph[398].accessible[2] = graph[377];
2269
2270     graph[399].accessible = new Position[1];
2271     graph[399].accessible[0] = graph[388];
2272
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```
2273     graph[400].accessible = new Position[2];
2274     graph[400].accessible[0] = graph[378];
2275     graph[400].accessible[1] = graph[380];
2276
2277     graph[401].accessible = new Position[1];
2278     graph[401].accessible[0] = graph[378];
2279
2280     graph[402].accessible = new Position[1];
2281     graph[402].accessible[0] = graph[379];
2282
2283     graph[403].accessible = new Position[1];
2284     graph[403].accessible[0] = graph[380];
2285
2286     graph[404].accessible = new Position[1];
2287     graph[404].accessible[0] = graph[381];
2288
2289     graph[405].accessible = new Position[1];
2290     graph[405].accessible[0] = graph[382];
2291
2292     graph[406].accessible = new Position[1];
2293     graph[406].accessible[0] = graph[382];
2294
2295     graph[407].accessible = new Position[1];
2296     graph[407].accessible[0] = graph[382];
2297
2298     graph[408].accessible = new Position[1];
2299     graph[408].accessible[0] = graph[383];
2300
2301     graph[409].accessible = new Position[1];
2302     graph[409].accessible[0] = graph[383];
2303
2304     graph[410].accessible = new Position[1];
2305     graph[410].accessible[0] = graph[384];
2306
2307     graph[411].accessible = new Position[2];
2308     graph[411].accessible[0] = graph[385];
2309     graph[411].accessible[1] = graph[386];
2310
2311     graph[412].accessible = new Position[2];
2312     graph[412].accessible[0] = graph[386];
2313     graph[412].accessible[1] = graph[387];
2314
2315     graph[413].accessible = new Position[1];
2316     graph[413].accessible[0] = graph[387];
2317
2318     graph[414].accessible = new Position[1];
2319     graph[414].accessible[0] = graph[389];
2320
2321     graph[415].accessible = new Position[2];
2322     graph[415].accessible[0] = graph[389];
2323     graph[415].accessible[1] = graph[391];
2324
2325     graph[416].accessible = new Position[1];
2326     graph[416].accessible[0] = graph[390];
2327
2328     graph[417].accessible = new Position[2];
2329     graph[417].accessible[0] = graph[391];
2330     graph[417].accessible[1] = graph[393];
2331
2332     graph[418].accessible = new Position[1];
2333     graph[418].accessible[0] = graph[392];
2334
2335     graph[419].accessible = new Position[1];
2336     graph[419].accessible[0] = graph[394];
2337
2338     graph[420].accessible = new Position[2];
2339     graph[420].accessible[0] = graph[394];
2340     graph[420].accessible[1] = graph[396];
2341
2342     graph[421].accessible = new Position[1];
2343     graph[421].accessible[0] = graph[395];
```

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2344
2345     graph[422].accessible = new Position[2];
2346     graph[422].accessible[0] = graph[395];
2347     graph[422].accessible[1] = graph[397];
2348
2349     graph[423].accessible = new Position[1];
2350     graph[423].accessible[0] = graph[397];
2351
2352     Log.i("ASTAR", "Graph Built of size " + graph.length);
2353 }
2354 }
2355
```