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Programming Assignment 2 Transition model

```
406     void updateProbabilities(int action, String sonars) {
407         // your code asdf
408         // moveProb and sensorAccuracy
409         boolean northBlock;
410         boolean southBlock;
411         boolean eastBlock;
412         boolean westBlock;
413 
414         if (sonars.charAt(0) == '1') {
415             northBlock = true;
416         } else {
417             northBlock = false;
418         }
419         if (sonars.charAt(1) == '1') {
420             southBlock = true;
421         } else {
422             southBlock = false;
423         }
424         if (sonars.charAt(2) == '1') {
425             eastBlock = true;
426         } else {
427             eastBlock = false;
428         }
429         if (sonars.charAt(3) == '1') {
430             westBlock = true;
431         } else {
432             westBlock = false;
433         }
434         // mundo.grid 1 is black and 0 is white asdf
435         // (y - 1) = north, (y + 1) = south, (x + 1) = east, (x - 1) = west
436 
437         // 1 and height - 1 are for not checking the outer ring
438         double[][] newprobs = new double[mundo.width][mundo.height];
439         for (int y = 1; y < mundo.height - 1; y++) {
440             for (int x = 1; x < mundo.width - 1; x++) {
441                 // fill up the action probabilities, likelihood we moved around
442                 double[] action_prob = new double[5];
443                 double otherMoveProb = (1 - moveProb) / 4;
444                 for (int i = 0; i < 5; i++) {
445                     action_prob[i] = otherMoveProb;
446                 }
447                 action_prob[action] = moveProb;
448 
449                 if (mundo.grid[x][y - 1] == 1) {
450                     action_prob[4] = action_prob[4] + action_prob[0];
451                 }
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451                 }
452                 if (mundo.grid[x][y + 1] == 1) {
453                     action_prob[4] = action_prob[4] + action_prob[1];
454                 }
455                 if (mundo.grid[x + 1][y] == 1) {
456                     action_prob[4] = action_prob[4] + action_prob[2];
457                 }
458                 if (mundo.grid[x - 1][y] == 1) {
459                     action_prob[4] = action_prob[4] + action_prob[3];
460                 }
461                 // Now the transtition probabilities are ready
462 
463                 newprobs[x][y] = (probs[x][y + 1] * action_prob[0]) + (probs[x][y - 1] * action_prob[1]) +
464                         (probs[x - 1][y] * action_prob[2]) + (probs[x + 1][y] * action_prob[3])
465                         + (probs[x][y] * action_prob[4]);
466 
467                 if (mundo.grid[x][y] == 1) {
468                     newprobs[x][y] = 0;
469                 }
470             }
471         }
472 
473         // This is the sensor step
474         for (int y = 1; y < mundo.height - 1; y++) {
475             for (int x = 1; x < mundo.width - 1; x++) {
476                 double sensorProb = 1;
477                 if (mundo.grid[x][y - 1] == 1) {
478                     if (northBlock) {
479                         sensorProb *= sensorAccuracy;
480                     } else {
481                         sensorProb *= (1 - sensorAccuracy);
482                     }
483                 } else {
484                     if (northBlock) {
485                         sensorProb *= (1 - sensorAccuracy);
486                     } else {
487                         sensorProb *= sensorAccuracy;
488                     }
489                 }
490                 if (mundo.grid[x][y + 1] == 1) {
491                     if (southBlock) {
492                         sensorProb *= sensorAccuracy;
493                     } else {
494                         sensorProb *= (1 - sensorAccuracy);
495                     }
496                 } else {
```

```
496                 } else {
497                     if (southBlock) {
498                         sensorProb *= (1 - sensorAccuracy);
499                     } else {
500                         sensorProb *= sensorAccuracy;
501                     }
502                 }
503                 if (mundo.grid[x + 1][y] == 1) {
504                     if (eastBlock) {
505                         sensorProb *= sensorAccuracy;
506                     } else {
507                         sensorProb *= (1 - sensorAccuracy);
508                     }
509                 } else {
510                     if (eastBlock) {
511                         sensorProb *= (1 - sensorAccuracy);
512                     } else {
513                         sensorProb *= sensorAccuracy;
514                     }
515                 }
516                 if (mundo.grid[x - 1][y] == 1) {
517                     if (westBlock) {
518                         sensorProb *= sensorAccuracy;
519                     } else {
520                         sensorProb *= (1 - sensorAccuracy);
521                     }
522                 } else {
523                     if (westBlock) {
524                         sensorProb *= (1 - sensorAccuracy);
525                     } else {
526                         sensorProb *= sensorAccuracy;
527                     }
528                 }
529                 newprobs[x][y] *= sensorProb;
530             }
531         }
532 
533         // Normalize everything
534         double total = 0;
535         for (int y = 1; y < mundo.height - 1; y++) {
536             for (int x = 1; x < mundo.width - 1; x++) {
537                 total = total + newprobs[x][y];
538             }
539         }
540         for (int y = 1; y < mundo.height - 1; y++) {
```

```
533         // Normalize everything
534         double total = 0;
535         for (int y = 1; y < mundo.height - 1; y++) {
536             for (int x = 1; x < mundo.width - 1; x++) {
537                 total = total + newprobs[x][y];
538             }
539         }
540         for (int y = 1; y < mundo.height - 1; y++) {
541             for (int x = 1; x < mundo.width - 1; x++) {
542                 newprobs[x][y] = newprobs[x][y] / total;
543             }
544         }
545         // Now just copy over the probs
546         for (int y = 1; y < mundo.height - 1; y++) {
547             for (int x = 1; x < mundo.width - 1; x++) {
548                 probs[x][y] = newprobs[x][y];
549             }
550         }
551 
552         myMaps.updateProbs(probs); // call this function after updating your probabilities so that the
553                                    // new probabilities will show up in the probability map on the GUI
554     }
```

I'm gonna be honest, there isn't one piece of advice that would have been super useful over other advice to give because before I started the lab, I knew absolutely nothing going into it and was clueless so literally anything would have helped me. Maybe that blocks are mundo.grid ==1 and empty is mundo.grid==0, and that trying to use a fancy IDE for this project is going to cost me a bunch of time that I don't need to waste.