

Activity

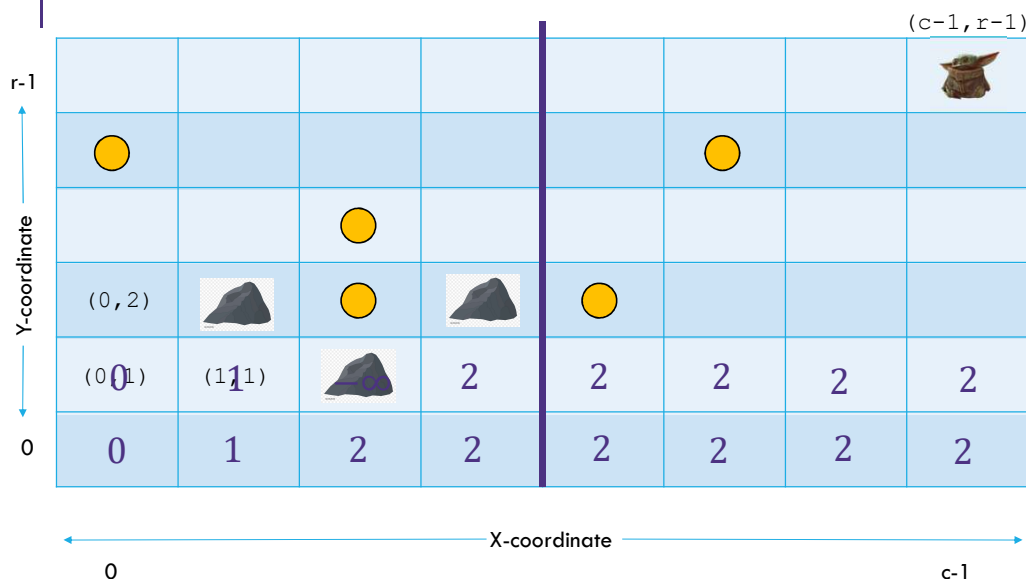
Fill out the question at
pollev.com/robbie

Figure out how to take advantage of the repeated calculation.
 What do you think the running time will be of your new algorithm?

```

FindOPT(int i,int j, bool[][] rocks, bool[][] eggs)
  if(i<0 || j < 0) return -∞
  if(rocks[i][j]) return -∞
  if(i==0 && j==0) return eggs[0][0]
  int left = FindOPT(i-1,j,rocks,eggs)
  int down = FindOPT(i,j-1,rocks,eggs)
  return Max(left,down) + eggs[i][j]
  
```

Baby Yoda Searching



What else
 can we fill in?

Pseudocode

```

int eggsSoFar=0;
Boolean rocksInWay=false
for(int x=0; x<c; x++)
    if(rocks[x][0]) rocksInWay = true
    eggsSoFar+=eggs[x][0]
    OPT[x][0]= rocksInWay ? -∞ : eggsSoFar

eggsSoFar=0
rocksInWay=false
for(int y=0; y<r; y++)
    if(rocks[0][y]) rocksInWay = true
    eggsSoFar+=eggs[0][y]
    OPT[0][y]= rocksInWay ? -∞ : eggsSoFar

for(int y=0;y<r;y++)
    for(int x=0;x<c;x++)
        if(rocks[x][y])
            OPT[x][y]=-∞
        else
            OPT[x][y]=max(OPT[x-1][y], OPT[x][y-1])+eggs[x][y]

```

Dynamic Programming Process

1. Define the object you're looking for
2. Write a recurrence to say how to find it
3. Design a memoization structure
4. Write an iterative algorithm