

Undo & Redo – From an old test question

10. Fill in the code for this connect 3 game called Scrubby Dubby.

The picture information:



The grid information:



The code:

```
int soap [][]={{____, _____, _____},
               {____, _____, _____},
               {____, _____, _____},
               {____, _____, _____}};

JButton pics[]=new JButton[_____];
Panel grid=new Panel(new GridLayout(____,____));
int m=0;
for(int i=0; i<____; i++){
    for(int j=0; j<____; j++){
        pics[m]=new JButton
            (createImageIcon(_____[i][j]+".jpg"));
        pics[m].addActionListener(this);
        pics[m].setActionCommand(_____"");
        grid.add(pics[m]);
        m++;
    }
}
add(grid);
```

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11. In Scrubby Dubby, the series of the user's moves are stored in a 3D array.

Answer the questions about the array memory diagram shown below.

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Move 0	Move 1	Move 2	Move 3	Move 4	Move 5
1 3 4	5 3 4	4 2 4	1 3 4	2 2 4	5 2 3
2 3 1	5 3 1	2 3 1	2 3 3	5 3 3	2 1 4
3 2 1	3 2 1	2 3 1	2 3 1	2 4 1	5 3 1
4 5 1	3 3 2	5 1 2	5 3 2	5 3 2	2 3 1

- The first dimension is the move number; thus the indices will go from to
- The second dimension is the number of rows on a game board; thus the indices will go from to
- The third dimension is the number of columns on a game board; thus the indices will go from to
- The array would be declared like this: `int move[][][]=new int[.....][.....][.....];`
- What is in `move[1][2][0]`? What is in `move[5][3][2]`?

(f) There is a separate array holding the pieces currently on the screen:

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```
int soap[][]=new int[3][5];
```

There is also a variable holding the current move called `cur` (it holds 5 right now).

Code the undo button: copy the previous move into the onScreen soap array.

```
//change cur to be one less
```

```
//loop through soap, changing it.
```

```
for(int i = ____; i<____; ____){
    for(int j = ____; j<____; ____){
        soap[____][____]=move[____][____][____];
    }
}
redraw();
```

(g) Save the last move into the move array. This would be called whenever the board changed.

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```
//loop through soap, moving it to the move array.
```

```
for(int i = ____; i<____; ____){
    for(int j = ____; j<____; ____){
        move[____][____][____]=b[____][____];
    }
}
//change cur to be one more
```