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Royal game of Ur

Started by ramidavis, Dec 8 2017 5:41 PM

abandoned,

ramidavis ONLINE

Posted Fri Dec 8, 2017 5:41 PM

If Ur is to be made for the TI, it will have to be by someone else.
Sorry, i would rather play the huge library of games for the TI then try to make them.

As it is, the code i have made provides all the main graphics for the game. Someone more capable then i should be able to take it and flesh it out into a actual game.

I will still probably tinker here and there with TI programming, making the occasional interesting [thing](http://atariage.com/forums/topic/272711-tis-the-season-for-latkes-;/) (<http://atariage.com/forums/topic/272711-tis-the-season-for-latkes-;/>) like my [code rain](http://atariage.com/forums/topic/241767-code-rain-effect-updated-to-v04/) (<http://atariage.com/forums/topic/241767-code-rain-effect-updated-to-v04/>) or [music](http://atariage.com/forums/topic/268748-fingals-cave/) (<http://atariage.com/forums/topic/268748-fingals-cave/>) [programs](http://atariage.com/forums/topic/272465-one-texas-evening/) (<http://atariage.com/forums/topic/272465-one-texas-evening/>) , but i'll leave the big boys to do the serious stuff.

~~Does anyone know if Ur has been done for retro home computers before?~~
~~Ur looks like a pretty simple game, so i thought i may take a go at programming it for the ti.~~
~~But i don't feel like reinventing the wheel.~~
~~If it has been done for another basic dialect, i may as well try to convert the existing program to ti basic/xb.~~
~~If not, i guess i better get started :-)~~
~~Assuming i can get it going, i may even attempt a simple a.i. player opponent.~~
~~Basically, scan the board to see how many pieces with a valid move are available, then randomly pick one of those pieces and make the move, then turn control back to player.~~

Edited by ramidavis, Sun Dec 10, 2017 7:37 PM.

ramidavis ONLINE

Posted Sat Dec 9, 2017 12:18 AM

I have started thinking about how to best represent the game board.
Using option base 1 and a 3 dimensional array of 8 elements per dimension BOARD(8,8,8) the board could be represented as such:

```
[0 ][0 ][0 ]
[0 ][0 ][0 ]
[-1][0 ][-1]
[-1][0 ][-1]
[0 ][0 ][0 ]
[0 ][0 ][0 ]
```



```
[o ][o ][o ]
[o ][o ][o ]
```

Additional variables:

MLEFT1=6

MLEFT2=6

MOFF1=0

MOFF2=0

The -1's represent the off board spaces to each side of the narrow section of the board.

No one is allowed to move there.


The 0's mean no one is there in that spot.

A peice for player one could be shown with a value of 1, and a piece for player two would be a 2.

MLEFT1, MLEFT2, MOFF1, and MOFF2 are the number of pieces not yet in play, and the number of pieces each player has managed to exit the board.

However, the board is divided into two "circuits" if you will.

Basically, player one stays on the left hand side of the board, and player two stays on the right hand side of the board, as the attached picture shows the routes of each player.

 (http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=542935) **ur-rules-1.jpg** (http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=542935)

37.52KB 0 downloads

As such, the players are only each playing on 14 spaces, not 20.

This means, i should be able to represent the entire game board with a single dimensional array of BOARD(14)

The first four elements of this array represent the the first four "private" spots on the board for each player, where the opponent will never be visiting.

Again, a 1 would mean player one, a 2 for player two.

But lets say both player one and player two both have a piece on their first spot.

I would represent it as a 3.

Lets see an example using our single dimension array idea:

```
[ ][ ][ ]
[ ][ ][ ]
[ ]
[ ]
[1][ ][ ]
[ ][ ][2]
[1][ ][2]
[ ][2][ ]
```

Here, player one has men on the first and third spaces of his side of the board, player two has men on his second and third space, and a man on the first space of the middle section.

As a single dimention array, it would look like:

BOARD(1)=1

BOARD(2)=2

BOARD(3)=3

BOARD(4)=0

BOARD(5)=2

BOARD(6)=0

BOARD(7)=0

BOARD(8)=0

BOARD(9)=0

BOARD(10)=0

BOARD(11)=0

BOARD(12)=0

BOARD(13)=0

BOARD(14)=0

While as a 3 dimensional array it would look like:

```
[o ][o ][o ]
[o ][o ][o ]
[-1][o ][-1]
[-1][o ][-1]
[1 ][o*][o ]
[o ][o ][2 ]
[1 ][o ][2 ]
[o ][2 ][o ]
```


BOARD(2,5) (or BOARD(8), as a single dimensional array {I have labeled the spot in the above diagram with a *}) is the only special spot that both players can reach.

So, i use the special value of 10 if player one is there and safe, and the value 20 if player two is there and safe, and of coarse 0 would mean the space is open still.

In the version of rules i intend to program, only one piece of any color may be on any space.

Just because you occupy the middle safe spot does mean you can pile your own men there.

Thats enough late night thinking for me.

Time to get some rest and pick this back up later.

Edited by ramidavis, Sat Dec 9, 2017 12:24 AM.

ramidavis ONLINE

Posted Sat Dec 9, 2017 11:58 AM

Worked a little on graphics today.

 (http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543004)

Screenshot.png ([http://atariage.com/forums/index.php?](http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543004)

[app=core&module=attach§ion=attach&attach_id=543004](http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543004)) **2.17KB** 0 downloads

Here we have a player on a rose spot and the other player on a normal spot.

(Is there anyway a mod could move this thread to the TI development forum, or should i start a separate thread there?)

Vorticon OFFLINE

Posted Sat Dec 9, 2017 3:25 PM

Used to play it a lot with my brother when we were kids then a couple of years ago I bought a version on Amazon just for nostalgia's sake 😊

Is this going to be a 1 or 2 player game?

ramidavis ONLINE

Posted Sat Dec 9, 2017 3:49 PM

If (Biggest word in English, mind you...) i can get it working with two players, then i can attempt to add a "dumb opponent". It will look for available/valid moves, and randomly pick one (but it still has to play by the rules and the number rolled).

It will not actually try all possibilities to find the "best move".

I honestly have no clue how i would write a opponent that actually looks for "good moves", in any game.

Basically, the computer opponent would be like playing against a toddler on a kool-aid high; he's just making random moves and has no idea what he is doing, but the parent (programmer) steps and tells him to pick a different move if its not legal.

Keeping the rules intact and checked against both players, either human or computer, is going to be the real meat of this program.

Edited by ramidavis, Sat Dec 9, 2017 3:51 PM.

ramidavis ONLINE

Posted Sat Dec 9, 2017 9:28 PM

OK, i now have it rolling the dice!


These are pyramidal "d4" four-sided dice, a bit like the ones in a D&D dice set.

Except there are no numbers. Instead, 2 tips are black, and 2 tips are white.

Your roll value is the total number of white tips showing on top, thus you can roll 0 through 4.



Here you can see how the game looks all set up before you start playing.

 (http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543081) **ur.png**
(http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543081) **2.16KB** 0
downloads

I still have to add the actual rules and everything else.


This is probably what you will see as the first screen if i leave it as either 2-player or 1-player vs. computer.

If i add the option select if player 2 is human **or** computer, then i will need to make a "main screen"/option screen to setup players.

I have attached a version of the program that will allow to roll the dice.

Press enter to reroll the dice.

Attached Files

 (http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543082)
UR.zip ([http://atariage.com/forums/index.php?](http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543082)
[app=core&module=attach§ion=attach&attach_id=543082](http://atariage.com/forums/index.php?app=core&module=attach§ion=attach&attach_id=543082)) **1017bytes** 1 downloads

Edited by ramidavis, Sat Dec 9, 2017 9:30 PM.

SIO2 OFFLINE

Posted Sun Dec 10, 2017 6:45 AM

I had never heard of this game before. It looks interesting.

The board strikes me as being remarkably similar to the ancient Egyptian game of Senet.

Perhaps you have seen this:

Tom Scott vs Irving Finkel: The Royal Game of Ur | PLAYTHROUGH | Interna...



watch.

It is a fun

The video suggests that there was an alternate set of rules that involved gambling. Since the die look like little pyramids and the Egyptians may have had a similar game... perhaps the explanation everyone has been looking for regarding what purpose the pyramids served is that they were casinos? 😊

Good luck on your project. I hope someone posts a video of your game when it is done.

Edited by SIO2, Sun Dec 10, 2017 7:44 AM.

ramidavis ONLINE

Posted Sun Dec 10, 2017 9:41 AM

Just realized i was using the wrong number of men. 7, not 6 each. whoops!

sometimes99er OFFLINE

Posted Sun Dec 10, 2017 11:37 AM

Very nice video indeed. And a lot like [Ludo \(https://en.wikipedia.org/wiki/Ludo_\(board_game\)\)](https://en.wikipedia.org/wiki/Ludo_(board_game))) . 😊

Edited by sometimes99er, Mon Dec 11, 2017 8:25 AM.

ramidavis ONLINE

Posted Sun Dec 10, 2017 1:21 PM

"Fixed" version with 7 men.
Now on to the hard part: implementing the rules and movement.

```
1 RANDOMIZE :: CALL CLEAR
2 CALL SCREEN(12)
100 CALL COLOR(10,5,16)
101 CALL COLOR(11,7,1)
102 CALL CHAR(96,"00000000183C7EFF")
103 CALL CHAR(104,"66E7FF2424FFE766")
104 CALL CHAR(105,"3C7EE7C3C3E77E3C")
105 CALL CHAR(106,"0000000018000000")
106 CALL CHAR(107,"0000000000000081")
107 CALL CHAR(112,"C381183C3C1881C3")
200 PRINT
201 PRINT
202 PRINT "BLACK          WHITE N LEFT  hhhhhhh  MEN LEF      hph hph      "
203 PRINT "      hhhhhhh          h h h h          hhhhhhh      "
204 PRINT "      h h h h          hhhhhhh          h hph h      "
205 PRINT "      hhhhhhh          h h          hhh      "
206 PRINT "      h h      N END  hhhhhhh  MEN END      hph hph      "
207 PRINT "      hhhhhhh          h h h h          hhhhhhh      "
208 PRINT
209 PRINT "      \ \ \ \      "
210 PRINT
211 DATA 4,1,77,4,2,69,4,31,84,16,1,77,16,2,69
212 RESTORE 211
213 FOR FILL=1 TO 5
214 READ Y,X,CP
215 CALL VCHAR(Y,X,CP)
216 NEXT FILL
300 CALL SPRITE(#1,105,2,25,81)
301 CALL SPRITE(#2,105,2,33,81)
302 CALL SPRITE(#3,105,2,41,81)
303 CALL SPRITE(#4,105,2,49,81)
304 CALL SPRITE(#5,105,2,57,81)
305 CALL SPRITE(#6,105,2,65,81)
306 CALL SPRITE(#7,105,2,73,81)
307 CALL SPRITE(#8,105,16,25,161)
308 CALL SPRITE(#9,105,16,33,161)
309 CALL SPRITE(#10,105,16,41,161)
310 CALL SPRITE(#11,105,16,49,161)
311 CALL SPRITE(#12,105,16,57,161)
312 CALL SPRITE(#13,105,16,65,161)
313 CALL SPRITE(#14,105,16,73,161)
314 CALL SPRITE(#15,32,16,169,97)
315 CALL SPRITE(#16,32,16,169,113)
316 CALL SPRITE(#17,32,16,169,129)
317 CALL SPRITE(#18,32,16,169,145)
398 CALL KEY(0,K,S)
399 IF S=0 THEN 398
400 X=INT(RND*5)
401 IF X=0 THEN 402 ELSE 406
402 FOR Y=1 TO 4
403 CALL PATTERN(#14+Y,107)
404 NEXT Y
405 GOTO 412
406 FOR Y=1 TO 4
407 CALL PATTERN(#14+Y,107)
408 NEXT Y
```



```

409 FOR Y=1 TO X
410 CALL PATTERN(#14+Y,106)
411 NEXT Y
412 ROLL=X
497 CALL KEY(0,K,S)
498 IF S=0 THEN 497
499 GOTO 400

```

Edited by ramidavis, Sun Dec 10, 2017 1:24 PM.

Ksarul OFFLINE

Posted Sun Dec 10, 2017 3:13 PM

There are also apparently two versions of the rules--one with three dice and the other with four. . .

Vorticon OFFLINE

Posted Sun Dec 10, 2017 3:58 PM

Here's a simple AI algorithm that should be pretty effective:

1. Throw dice
2. Can a piece move off the board (needs exact dice number)? If YES, then make move and take piece out of play. Go to 8
3. Can a piece on the board land on an enemy piece? If YES, then make move and take out enemy piece. Go to 8
4. Can a piece on the board land on a rosette square? If YES, then make move. Go to 1
5. Can a piece on the board move at all? if YES, then pick randomly between all possible eligible pieces and make move. Go to 8
6. Does the computer have any un-played pieces left? if NO then go to 9
7. Introduce a new piece into the game.
8. END computer turn.
9. Are all the computer pieces off the board? if YES, then computer wins. STOP
10. Go to 8

You could switch out 3 and 4 if you prefer.

ramidavis ONLINE

Posted Sun Dec 10, 2017 4:04 PM

Vorticon, on 10 Dec 2017 - 4:58 PM, said:

Here's a simple AI algorithm that should be pretty effective:

1. Throw dice
2. Can a piece move off the board (needs exact dice number)? If YES, then make move and take piece out of play. Go to 8
3. Can a piece on the board land on an enemy piece? if YES, then make move and take out enemy piece. Go to 7
4. Can a piece on the board land on a rosette square? If YES, then make move. Go to 1
5. Can a piece on the board move at all? if YES, then pick randomly between all possible eligible pieces and make move. Go to 7
6. Does the computer have any un-played pieces left? if NO then go to 8
7. Introduce a new piece into the game.
8. END computer turn.
9. Are all the computer pieces off the board? if YES, then computer wins
10. Go to 7

You could switch out 3 and 4 if you prefer.

Now its just a "simple" matter of turning that into TI-XB statements.

I am actually quit stumped.

I managed to get the graphical part down pretty good, but i just can't seem to wrap my mind around how to actually implement the logic side of this, either as a 1-vs-computer or 1-vs-2 player game.

Edited by ramidavis, Sun Dec 10, 2017 7:39 PM.

Vorticon OFFLINE

Posted Mon Dec 11, 2017 6:05 AM

I am more than happy to help you develop this game. The best way to tackle this would be to break it down into small self-contained steps, generally in the form of subroutines. I am very much a fan of the XB SUB facility, which is very powerful, so make sure you are familiar with it.

For example, you will need a routine to keep track of the location of your pieces and update it as needed. Another routine would be to check if any of your pieces can move, etc... Since a SUB can call other Subs, you can really break down processes very finely and simply call them as needed. SUB allows for parameter passing while being entirely independent from the rest of the program, unlike the standard GOSUB process.

As an example, the movement SUB would first call the dice rolling SUB which would return a number, then the move check SUB would get called to make sure that any of the pieces on the board can move, and so on and so forth... As you develop the game, you'll be creating new Subs as needed.

It's not necessarily an easy process, but it's definitely very doable if you take your time.

How about you start by creating the dice rolling SUB?

TheBF OFFLINE

Posted Mon Dec 11, 2017 7:13 AM

Vorticon, on 11 Dec 2017 - 07:05 AM, said:

...The best way to tackle this would be to break it down into small self-contained steps, generally in the form of subroutines. ...which is very powerful...

And so Forth :-)

I couldn't resist. I must confess after watching the video I am intrigued.

ramidavis ONLINE

Posted Mon Dec 11, 2017 8:00 AM

Vorticon, on 11 Dec 2017 - 07:05 AM, said:

I am more than happy to help you develop this game. The best way to tackle this would be to break it down into small self-contained steps, generally in the form of subroutines. I am very much a fan of the XB SUB facility, which is very powerful, so make sure you are familiar with it.

For example, you will need a routine to keep track of the location of your pieces and update it as needed. Another routine would be to check if any of your pieces can move, etc... Since a SUB can call other Subs, you can really break down processes very finely and simply call them as needed. SUB allows for parameter passing while being entirely independent from the rest of the program, unlike the standard GOSUB process.

As an example, the movement SUB would first call the dice rolling SUB which would return a number, then the move check SUB would get called to make sure that any of the pieces on the board can move, and so on and so forth... As you develop the game, you'll be creating new Subs as needed.

It's not necessarily an easy process, but it's definitely very doable if you take your time.

How about you start by creating the dice rolling SUB?

Don't let me stop you.

If you want to program Ur, go for it.

If you want to reuse my graphics or dice rolling from my work, go for it.

I personally, am not writing another single line of code for my program.

I have basically placed my attempt in the public-domain.

Anyone is free to build off of, modify, or reuse in whole or in part what i have done.

Or, you know, you could just write or own.

Have at it.

Your "dice rolling sub" is pretty much there in my program, just need to add your desired *sub name*: line at the start and a *subend* statement at the end.

As i have said i will not write another line of code for my program though, i will leave that for you to add.


```
400 X=INT(RND*5)
401 IF X=0 THEN 402 ELSE 406
402 FOR Y=1 TO 4
403 CALL PATTERN(#14+Y,107)
404 NEXT Y
405 GOTO 412
406 FOR Y=1 TO 4
407 CALL PATTERN(#14+Y,107)
408 NEXT Y
409 FOR Y=1 TO X
410 CALL PATTERN(#14+Y,106)
411 NEXT Y
412 ROLL=X
```

Generates a random number from 0-4 AND graphically displays the result on screen.

I look forward to playing your version of Ur someday.

Edited by ramidavis, Mon Dec 11, 2017 8:41 AM.

Vorticon OFFLINE

Posted Mon Dec 11, 2017 5:59 PM

TheBF, on 11 Dec 2017 - 08:13 AM, said:

And so Forth :-)

Yup Forth would be an ideal language for this game 😊 I'm tempted, but I just can't add yet another project to my list!
You do it 🇸🇮

TheBF OFFLINE

Posted Tue Dec 12, 2017 5:56 AM

Vorticon, on 11 Dec 2017 - 6:59 PM, said:

Yup Forth would be an ideal language for this game 😊 I'm tempted, but I just can't add yet another project to my list! You do it 🇸🇮

I started... but this month will be trouble.

The AI component has me interested, but I will get the basics setup first. No pun intended.

SIO2 OFFLINE

Posted Fri Dec 15, 2017 9:00 PM

<http://www.novelgames.com/en/ur/> (<http://www.novelgames.com/en/ur/>)

Be patient. It has to load then go through an ad first.

Edited by SIO2, Fri Dec 15, 2017 9:01 PM.

TheBF OFFLINE

Posted Sat Dec 16, 2017 10:42 AM

SIO2, on 15 Dec 2017 - 10:00 PM, said:

<http://www.novelgames.com/en/ur/> (<http://www.novelgames.com/en/ur/>)

Be patient. It has to load then go through an ad first.

Hey thanks. That gave me some real world experience. The ROBOT player on the site knows the game and beat me handily.

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