Teaching Fellow - Imperial College Dept of Computing - Interview Technical Exercise

Imperial graduates are known for their practical programming and software engineering skills, so we need the people who teach them to be excellent programmers. Please complete the following exercise to demonstrate your programming ability and style. We would prefer solutions in Java, Python, Kotlin, C/C++ or Haskell, but if you do not know any of these languages please use another language with which you are familiar. Write a solution which you think could serve as a model answer to this exercise, and which you think we could show to our students as an example of good programming style.

Exercise

Implement an interpreter for a simple version of the Turtle Graphics Language. This should allow users to enter programs using the commands listed below, and to see the appropriate graphical output on screen. It should be possible to create multiple turtles and have each one move independently. If you need any further clarifications on the requirements, just make an appropriate assumption.

Use a suitable library to draw on the screen in your language of choice (but not a turtle graphics library!).

Language commands

`turtle name` - create a new turtle identified by the given name
`move name x` - moves the named turtle forward by x units
`left name x` - rotate the turtle anticlockwise by x degrees
`right name x` - rotate the turtle clockwise by x degrees
`pen name up` - lift the pen off the “paper”
`pen name down` - put the pen down so that subsequent moves draw on the screen
`colour name c` - set the drawing colour of the turtle appropriately

Each turtle should start in the middle of the screen facing north, with the pen down.

The following program would draw a red square:

```
turtle tom
colour tom red
move tom 50
left tom 90
move tom 50
left tom 90
move tom 50
left tom 90
move tom 50
```

To submit

Please provide us with a git repository containing your work and also provide suitable instructions for us to be able to run and test your solution.