**Relative Velocity**

* Project Directory Structure

This project contains files and folders. The structure of the contents of this folder is outlined below:

* images/

This contains any images used for instruction showing, canvas images, arrow ‘s images for changing angle.

* js/

This contains the JavaScript files used. Jquery and the bootstrap is used by the project.

* css /

Style Sheets for this project. Here includes the css files which is given with the bootstrap

* bootstrap.css
* bootstrap.min.css
* bootstrap-theme.css
* bootstrap-theme.min.css
* font-awesome.min
* Index.html

The index.html file contains all main functionality functions used in this project

.These are defined with several method and variables, explained below.

* Variable

Flag:indicate the current case. 1 or case 2

case 1 varibles

vo:object velocity

rvo:relativity of velocity

rvog: relative velocity of object relative to ground

rvor: relative velocity of object relative to river

deg:degree that given by user

edge:degree value of relative to earth/river

cdeg:degree to draw curve

vr:velocity of river

wr:width of river

ct:crossing time

cd:crossing distance

dd:distance of go down to the river

dd2: distance of go up to the river

for drawings temporary variables

tvo1: temporary velocity for animation

tvo2: temporary velocity for animation

c:counter for animation(for timer)

sh: temporary canvas height

r\_deg:radius of radian

angleInDegrees: drawing arrow in case 1

case 2 varibles

b1v:object 1 velocity

b2v: object 2 velocity

b1deg:object 1 bearing

b2deg:object 2 bearing

dist:distance between object

distdeg:bearing of object 2 relative to object 1

b1rv:object 1 relative velocity

b2rv:object 2 relative velocity

shortd:shortest distance if available

time:time taken to obtain shortest distance

bd1:distance from start position of object 1 when shortest distance

bd2: distance from start position object 1 when shortest distance

b1deg2:bearing of object 1 when shortest distance

b2deg2:bearing of object 2 when shortest distance

angleInDegrees2:drawing arrow in case 2 first object

angleInDegrees3:drawing arrow in case 2 second object

type: "M" for meet "S" for shortest distance "N" for no shortest distance

for drawings temporary variables

tvb1n:object one velocity to north

tvb1e :object one velocity to east

tvb2n::object 2 velocity to north

tvb2e:object 2 velocity to east

pix:minimum pixels between objects

reldist1:relative distance when shortest available

reldist2:relative distance when shortest available

* Methods

Setflag:switch between case 1 and case 2

Case 1 methods

drawObject:draw the boat object

arrow:draw the rotated arrow when rotating

includes the mouseclick,mouse moving, drawRotated method.

Both object and arrow will draw by this method.

Arrowchng: This method works when fill angle in the form and draw the arrow according to given value

Cal: calculations are done here.all the velocities,times,angle will calculated.

Reset:last drawed image will delete.useful for do the simulations again and again

Cl:object drawed in start position.useful for do the simulations again and again

Move: for animate the object acoording to velocity

Stop: stop the animation

Ruler: for drawing the ruler in canvas.help to see the scaling

Showdata: calculated data will show using this method

Confirmbtnshow: to show the confirm button in the popup form to validate data

Submitbtnshow:if data are validated ok button will show

Chng: change the canvas heigh.for showing the movements which cannot show with current canvas height

Animateshow:show the animate button after click the ok button in the popup form

Animatehide: hide the animate button

Case 2 methods

drawObject:call this to draw the one boat object when needed

arrow: draw the rotated arrow when rotating

includes the mouseclick,mouse moving, drawRotated method.

Caldata:to calculate velocities ,time and other data need to show.

Setvariables: calculate temp velocities for drawing

Taketostart:determine and draw start position of objects

move2:animations starting

stop:stop animations

animateshow:show the animate button to start simulations

confirmbtnshow:to show confirm button for validate data in the popup form

submitbtnshow:to ok button after validating data in the popup form

chngarrow1,/chngarrow2:to change arrow when changing bearing values of boat 1/boat 2 in the form