Steps to run

1. Upload all files to Matlab Environment
2. Upload the environment folders to matlab environment
3. For environment 1

```
obstacleMatrix = csvread("../FYP/environment_1/sphere.csv");
RobstacleMatrix = csvread("../FYP/environment_1/sphere_radius.csv")';

% cylinderic obstacle - for env 1 keep at 2 or 3
% cordinate which define centre of obstacle around which structure is built
cylinderMatrix  = csvread("../FYP/environment_2/cylinder.csv");
cylinderRMatrix = csvread("../FYP/environment_2/cylinder_radius.csv")'; % radius
cylinderHMatrix = csvread("../FYP/environment_2/cylinder_height.csv")'; % height

% cone obstacle - for env 1 keep at 2 or 3
% cordinate which define centre of obstacle around which structure is built
coneMatrix      = csvread("../FYP/environment_2/cone.csv");
coneRMatrix     = csvread("../FYP/environment_2/cone_radius.csv"); % radius
coneHMatrix     = csvread("../FYP/environment_2/cone_height.csv"); % height

% start and target
start = csvread("../FYP/environment_1/start.csv")'; %Start coordinates
goal = csvread("../FYP/environment_1/goal.csv")'; %Goal Coordinates
```

For sphere obstacle change to env 1 and keep others either 2 or 3

```
254 figure(1)
255  for i = 1:numberOfSphere
256      drawSphere(ob_sphere.center(i,:), ob_sphere.radius(i))
257  end
258
259   %% For Environment 1 : Comment out lines 261-267
260  %% For Environments 2 and 3 : Uncomment
261
262    for i = 1:numberOfCylinder
263        drawCylinder(ob_cylinder.center(i,:), ob_cylinder.radius(i), ob_cylinder.height(i));
264    end
265
266    for i = 1:numberOfCone
267        drawCone(ob_cone.center(i,:), ob_cone.radius(i), ob_cone.height(i));
268    end
```

Comment out portions that run drawing cylinder and cone (262-268)

4. For environment 2 and 3 change all to environment_2 and environment_3 respectively and uncomment lines 262-268

DFO Decay is in separate file for easy configuration

```
3 %% 1. DFO Decay {0.1 - 0.0001}
4 Delta_itative=[0.1,0.01,0.001,0.0001,0.0001,0.0001,0.0001,0.0001,0.0001,0.0001];
  and Env 3 pop 15 best
5 %% 2. DFO Decay {0.01 - 0}
6 %Delta_itative=[0.01,0.0005,0.0001,0.00005,0.00001,0.000005,0.000001,0,0,0];
7
```

Delta_decay option can be selected for delta decay {0.1-0.0001} and delta decay {0.01-0}

Whereas for delta decay exponential, common out lines 94 - 96

```
94      if Re==0
95          delta= Delta_decay(Qu)
96      end
```

And uncomment line 98

```
98          delta=delta*0.5
```