

OKAFOR MARTINS CHINONSO

16/ENG07/018

```
1. function T=myexplicitfun(a,dt,dx,x0,xf,t0,tf,n,m)
2. c = 2.2;
3. dt=0.02; dx=0.3; x0=0; xf=6; t0=0; tf=0.3;
4. n = (xf-x0)/dx; m=(tf-t0)/dt;
5. x = [x0:dx:xf];
6. t = [t0:dt:tf];
7. r = (c*dt)/(dx^2);
8. T = zeros(m+1,n+1);
9. T(1,1:n+1) = 3*(x.^2);
10. T(1:m+1,1) = zeros(m+1,1);
11. T(1:m+1,n+1) = 108*(ones(m+1,1));
12. for j =1:m
13.     for i=2:n
14.         T(j+1,i)=r*T(j,i+1)+((1-(2*r))*T(j,i))+r*T(j,i-1);
15.     end
16. end
17. T;
18. mesh(x,t,T)
```

commandwindow

ans =

Columns 1 through 7

0	0.2700	1.0800	2.4300	4.3200	6.7500	9.7200
0	0.5340	1.3440	2.6940	4.5840	7.0140	9.9840
0	0.6689	1.6080	2.9580	4.8480	7.2780	10.2480
0	0.8010	1.8089	3.2220	5.1120	7.5420	10.5120
0	0.9022	2.0070	3.4552	5.3760	7.8060	10.7760
0	1.0012	2.1748	3.6862	5.6249	8.0700	11.0400
0	1.0855	2.3400	3.8951	5.8725	8.3266	11.3040

OKAFOR MARTINS CHINONSO

16/ENG07/018

0	1.1681	2.4870	4.1016	6.1056	8.5824	11.5644
0	1.2418	2.6316	4.2920	6.3367	8.8294	11.8243
0	1.3141	2.7639	4.4799	6.5557	9.0749	12.0790
0	1.3804	2.8940	4.6558	6.7725	9.3120	12.3328
0	1.4455	3.0154	4.8293	6.9792	9.5473	12.5809
0	1.5063	3.1347	4.9935	7.1837	9.7749	12.8278
0	1.5660	3.2474	5.1555	7.3798	10.0006	13.0692
0	1.6224	3.3582	5.3100	7.5737	10.2195	13.3090
0	1.6779	3.4638	5.4625	7.7605	10.4364	13.5436

Columns 8 through 14

13.2300	17.2800	21.8700	27.0000	32.6700	38.8800	45.6300
13.4940	17.5440	22.1340	27.2640	32.9340	39.1440	45.8940
13.7580	17.8080	22.3980	27.5280	33.1980	39.4080	46.1580
14.0220	18.0720	22.6620	27.7920	33.4620	39.6720	46.4220
14.2860	18.3360	22.9260	28.0560	33.7260	39.9360	46.6860
14.5500	18.6000	23.1900	28.3200	33.9900	40.2000	46.9500
14.8140	18.8640	23.4540	28.5840	34.2540	40.4640	47.2140
15.0780	19.1280	23.7180	28.8480	34.5180	40.7280	47.4780
15.3402	19.3920	23.9820	29.1120	34.7820	40.9920	47.7402
15.6022	19.6551	24.2460	29.3760	35.0460	41.2551	48.0022

OKAFOR MARTINS CHINONSO

16/ENG07/018

15.8612	19.9181	24.5096	29.6400	35.3096	41.5181	48.2612
16.1196	20.1794	24.7731	29.9036	35.5731	41.7794	48.5196
16.3744	20.4404	25.0356	30.1671	35.8356	42.0404	48.7744
16.6283	20.6991	25.2978	30.4296	36.0978	42.2991	49.0283
16.8784	20.9572	25.5584	30.6918	36.3584	42.5572	49.2784
17.1275	21.2126	25.8186	30.9525	36.6186	42.8126	49.5275

Columns 15 through 21

52.9200	60.7500	69.1200	78.0300	87.4800	97.4700	108.0000
53.1840	61.0140	69.3840	78.2940	87.7440	97.7340	108.0000
53.4480	61.2780	69.6480	78.5580	88.0080	97.8689	108.0000
53.7120	61.5420	69.9120	78.8220	88.2089	98.0010	108.0000
53.9760	61.8060	70.1760	79.0552	88.4070	98.1022	108.0000
54.2400	62.0700	70.4249	79.2862	88.5748	98.2012	108.0000
54.5040	62.3266	70.6725	79.4951	88.7400	98.2855	108.0000
54.7644	62.5824	70.9056	79.7016	88.8870	98.3681	108.0000
55.0243	62.8294	71.1367	79.8920	89.0316	98.4418	108.0000
55.2790	63.0749	71.3557	80.0799	89.1639	98.5141	108.0000
55.5328	63.3120	71.5725	80.2558	89.2940	98.5804	108.0000
55.7809	63.5473	71.7792	80.4293	89.4154	98.6455	108.0000
56.0278	63.7749	71.9837	80.5935	89.5347	98.7063	108.0000

OKAFOR MARTINS CHINONSO

16/ENG07/018

56.2692	64.0006	72.1798	80.7555	89.6474	98.7660	108.0000
56.5090	64.2195	72.3737	80.9100	89.7582	98.8224	108.0000
56.7436	64.4364	72.5605	81.0625	89.8638	98.8779	108.0000

