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1 !Assignment 2
2 !Name: Debasis Buxy
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4 !PRN: 22020004154
5 program LCG
6   implicit none
7   integer :: a, c, m, x_0, x_n
8   integer:: n, i, nbin, f(1000), i_bin, E
9   real :: x, x_max, binSize, chisq
10  open(unit=1,file="lcgout.dat")
11  open(unit=2,file="lcgdist.dat")
12  a = 106
13  c = 1283
14  m = 100001
15  n = 1E4
16  x_0 = 0
17  x_n = x_0
18  x_max = 1.0
19  nbin = 100
20  f = 0.0
21  E = n/nbin
22  chisq = 0.0
23  binSize = x_max/nbin
24  do i = 1, n
25    x_n = mod(a*x_n+c,m)
26    x = x_n/(1.0*m)
27    write(1,*) x
28    i_bin = int(x/binSize)+1
29    f(i_bin) = f(i_bin)+1
30  end do
31  do i = 1, nbin
32    write(2,100) (i-0.5)*binSize, f(i), f(i)/(1.0*n) !x, frequency, probability
33    chisq = chisq+(f(i)-E)**2
34    chisq = chisq/E
35  end do
36  write(*,*) "Chi^2 = ", chisq
37 100 format(F8.4,4X,I4,4X,F8.6)
38 end program LCG
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1	0.0050	137	0.013700
2	0.0150	109	0.010900
3	0.0250	108	0.010800
4	0.0350	98	0.009800
5	0.0450	94	0.009400
6	0.0550	101	0.010100
7	0.0650	109	0.010900
8	0.0750	98	0.009800
9	0.0850	93	0.009300
10	0.0950	93	0.009300
11	0.1050	80	0.008000
12	0.1150	107	0.010700
13	0.1250	96	0.009600
14	0.1350	86	0.008600
15	0.1450	104	0.010400
16	0.1550	97	0.009700
17	0.1650	103	0.010300
18	0.1750	111	0.011100
19	0.1850	109	0.010900
20	0.1950	112	0.011200
21	0.2050	110	0.011000
22	0.2150	111	0.011100
23	0.2250	113	0.011300
24	0.2350	98	0.009800
25	0.2450	95	0.009500
26	0.2550	102	0.010200
27	0.2650	100	0.010000
28	0.2750	94	0.009400
29	0.2850	89	0.008900
30	0.2950	85	0.008500
31	0.3050	90	0.009000
32	0.3150	110	0.011000
33	0.3250	102	0.010200
34	0.3350	90	0.009000
35	0.3450	83	0.008300
36	0.3550	104	0.010400
37	0.3650	92	0.009200
38	0.3750	103	0.010300
39	0.3850	91	0.009100
40	0.3950	92	0.009200
41	0.4050	110	0.011000
42	0.4150	104	0.010400
43	0.4250	104	0.010400
44	0.4350	92	0.009200
45	0.4450	119	0.011900
46	0.4550	101	0.010100
47	0.4650	75	0.007500
48	0.4750	103	0.010300
49	0.4850	104	0.010400
50	0.4950	86	0.008600
51	0.5050	103	0.010300
52	0.5150	109	0.010900
53	0.5250	99	0.009900
54	0.5350	109	0.010900
55	0.5450	101	0.010100
56	0.5550	106	0.010600
57	0.5650	98	0.009800
58	0.5750	90	0.009000
59	0.5850	94	0.009400

60	0.5950	97	0.009700
61	0.6050	101	0.010100
62	0.6150	95	0.009500
63	0.6250	87	0.008700
64	0.6350	99	0.009900
65	0.6450	104	0.010400
66	0.6550	100	0.010000
67	0.6650	84	0.008400
68	0.6750	99	0.009900
69	0.6850	76	0.007600
70	0.6950	109	0.010900
71	0.7050	98	0.009800
72	0.7150	89	0.008900
73	0.7250	93	0.009300
74	0.7350	118	0.011800
75	0.7450	100	0.010000
76	0.7550	116	0.011600
77	0.7650	117	0.011700
78	0.7750	95	0.009500
79	0.7850	117	0.011700
80	0.7950	98	0.009800
81	0.8050	112	0.011200
82	0.8150	95	0.009500
83	0.8250	108	0.010800
84	0.8350	92	0.009200
85	0.8450	101	0.010100
86	0.8550	90	0.009000
87	0.8650	93	0.009300
88	0.8750	93	0.009300
89	0.8850	104	0.010400
90	0.8950	95	0.009500
91	0.9050	101	0.010100
92	0.9150	86	0.008600
93	0.9250	101	0.010100
94	0.9350	109	0.010900
95	0.9450	100	0.010000
96	0.9550	125	0.012500
97	0.9650	108	0.010800
98	0.9750	91	0.009100
99	0.9850	97	0.009700
100	0.9950	101	0.010100
101			

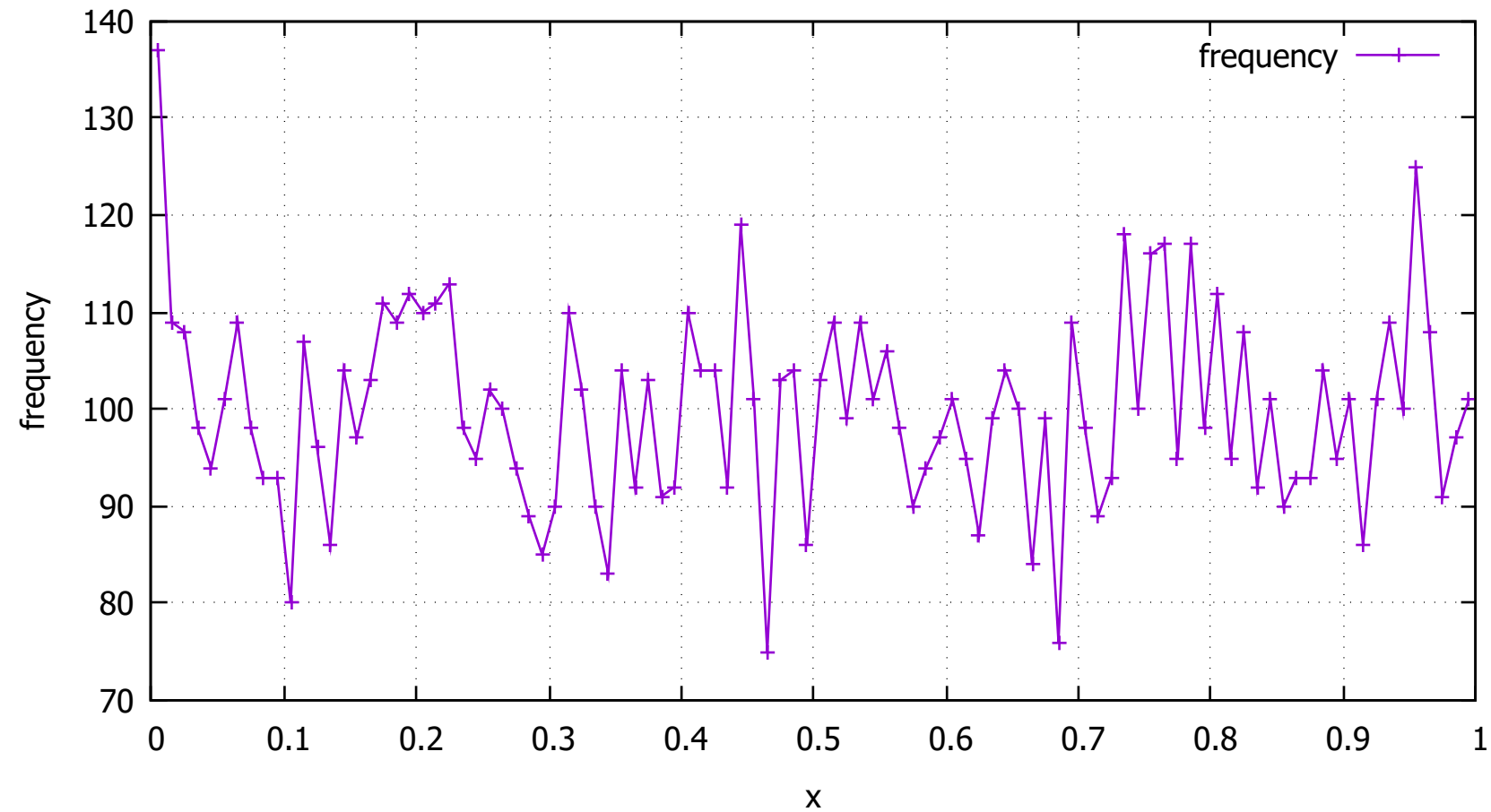
Debasis assignments → (master) ♥ 16:48 gfortran .\lcg.f90

Debasis assignments → (master) ♥ 16:48 .\a.exe

Chi^2 = 1.09817032E-02

Debasis assignments → (master) ♥ 16:48 \_

frequency vs x



probability vs x

