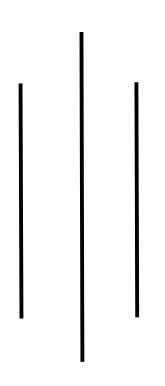
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Simulation and Modelling Practical

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Program to illustrate Cobweb model

Background theory:

In supply demand problem, two linear equations for demand D and supply S were considered. Aim was to compute probable price and demand in the market subject to a condition that supply and demand should be equal. But supply of the product in the parameters. The equation are:

```
D=a-bP
S=c+dP1
D=S
```

a) Model 1

```
Program:
```

```
#include<stdio.h>
int main()
{
    int a=12,i;
    float p=30,b=30,c=1,d=0.9,s,dem;
    printf("i\tp\td\ts");
    printf("\n------");
    for(i=0;i<20;i++){
        s=c+d*p;
        dem=s;
        p=((float)a-dem)/b;
        printf("\n%d\t%.4f\t%.4f\t%.4f",i,p,dem,s);
    }
    return 0;
}</pre>
```

Output:

× -	□ Ter	minal			
i	P	d	s		
0	-0.5333	28.0000	28.0000		
1	0.3827	0.5200	0.5200		
2	0.3552	1.3444	1.3444		
3	0.3560	1.3197	1.3197		
4	0.3560	1.3204	1.3204		
5	0.3560	1.3204	1.3204		
6	0.3560	1.3204	1.3204		
7	0.3560	1.3204	1.3204		
8	0.3560	1.3204	1.3204		
9	0.3560	1.3204	1.3204		
10	0.3560	1.3204	1.3204		
11	0.3560	1.3204	1.3204		
12	0.3560	1.3204	1.3204		
13	0.3560	1.3204	1.3204		
14	0.3560	1.3204	1.3204		
15	0.3560	1.3204	1.3204		
16	0.3560	1.3204	1.3204		
17	0.3560	1.3204	1.3204		
18	0.3560	1.3204	1.3204		
19	0.3560	1.3204	1.3204		

b)Model 2

```
Program:
```

```
#include<stdio.h>
int main()
{
    int a=10,i;
    float p=5,b=0.9,c=-2.4,d=1.2,s,dem;
    printf("i\to \td\t s");
    printf("\n------");
    for(i=0;i<20;i++){
        s=c+d*p;
        dem=s;
        p=((float)a-dem)/b;
        printf("\n%d\t%.2f\t %.2f\t %.2f",i,p,dem,s);
    }
    return 0;
}</pre>
```

Output:

i	p	d	s
0	7.11	3.60	3.60
1	4.30	6.13	6.13
2	8.05	2.76	2.76
3	3.05	7.26	7.26
4	9.72	1.25	1.25
5	0.82	9.26	9.26
6	12.68	-1.41	-1.41
7	-3.13	12.82	12.82
8	17.95	-6.16	-6.16
9	-10.16	19.15	19.15
10	27.33	-14.59	-14.59
11	-22.66	30.39	30.39
12	43.99	-29.59	-29.59
13	-44.87	50.39	50.39
14	73.61	-56.25	-56.25
15	-84.37	85.93	85.93
16	126.27	-103.64	-103.64
17	-154.58	149.12	149.12
18	219.88	-187.90	-187.90
19	-279.40	261.46	261.46

Conclusion:

Hence by above output we can say that model 1 is stable but model 2 is not stable.