KUIS 4

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EL2008-Pemecahan Masalah dengan C

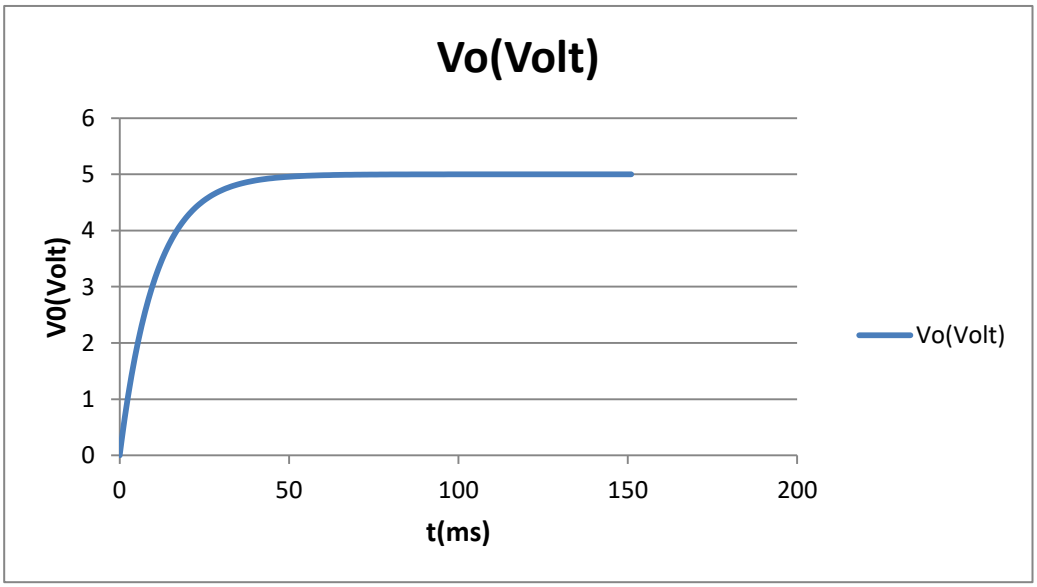
1. PENURUNAN RUMUS

$$\Delta t = 1ms$$
$$Vo(0) = 0v$$
$$Vo(t) = Vs - I(t)R$$
$$Vo(t) = Vs - RC\frac{dVo(t)}{dt}$$
$$Vo(t) = Vs - RC\frac{\Delta Vo(t)}{\Delta t}$$
$$Vo(t) = Vs - RC\frac{(Vo(t) - Vo(t-\Delta t))}{\Delta t}$$
$$Vo(t) + \frac{Vo(t)RC}{\Delta t} = Vs + \frac{RCVo(t-\Delta t)}{\Delta t}$$
$$Vo(t)(1 + \frac{RC}{\Delta t}) = Vs + \frac{RCVo(t-\Delta t)}{\Delta t}$$
$$Vo(t) = \frac{Vs\Delta t}{\Delta t + RC} + \frac{RCVo(t-\Delta t)}{\Delta t + RC}$$
$$Vo(t) = \frac{Vs\Delta t + RCVo(t-\Delta t)}{\Delta t + RC}$$

Rumus yang dipakai pada source code:

$$Vo(t)(1 + \frac{RC}{\Delta t}) = Vs + \frac{RCVo(t-\Delta t)}{\Delta t}$$

2. GRAFIK TEGANGAN OUTPUT TERHADAP WAKTU



3. FILE TXT DIREPRESENTASIKAN DALAM BENTUK EXCEL

t(ms)	Vo(Volt)
0	0
1	0.455
2	0.868
3	1.243
4	1.585
5	1.895
6	2.178
7	2.434
8	2.667
9	2.88
10	3.072
11	3.248
12	3.407
13	3.552
14	3.683
15	3.803
16	3.912
17	4.011
18	4.101
19	4.182
20	4.257
21	4.324
22	4.386
23	4.442

24	4.492
25	4.539
26	4.58
27	4.619
28	4.653
29	4.685
30	4.713
31	4.74
32	4.763
33	4.785
34	4.804
35	4.822
36	4.838
37	4.853
38	4.866
39	4.878
40	4.89
41	4.9
42	4.909
43	4.917
44	4.925
45	4.931
46	4.938
47	4.943

48	4.948
49	4.953
50	4.957
51	4.961
52	4.965
53	4.968
54	4.971
55	4.974
56	4.976
57	4.978
58	4.98
59	4.982
60	4.984
61	4.985
62	4.986
63	4.988
64	4.989
65	4.99
66	4.991
67	4.992
68	4.992
69	4.993
70	4.994
71	4.994
72	4.995

73	4.995
74	4.996
75	4.996
76	4.996
77	4.997
78	4.997
79	4.997
80	4.998
81	4.998
82	4.998
83	4.998
84	4.998
85	4.998
86	4.999
87	4.999
88	4.999
89	4.999
90	4.999
91	4.999
92	4.999
93	4.999
94	4.999
95	4.999
96	4.999

97	5
98	5
99	5
100	5
101	5
102	5
103	5
104	5
105	5
106	5
107	5
108	5
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112	5
113	5
114	5
115	5
116	5
117	5
118	5
119	5
120	5
121	5
122	5

123	5
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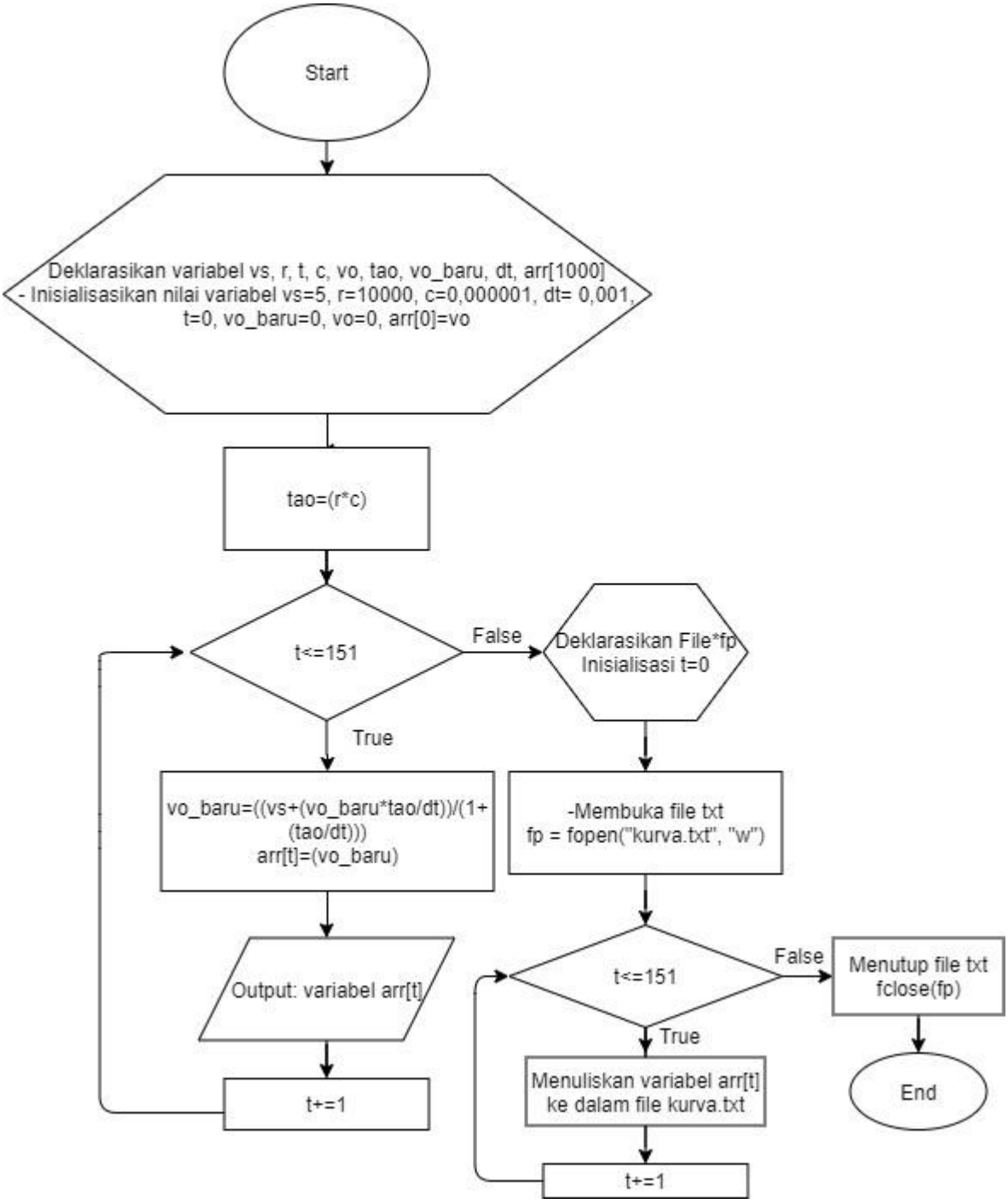
131	5
132	5
133	5
134	5
135	5
136	5
137	5
138	5
139	5
140	5
141	5
142	5
143	5
144	5
145	5
146	5
147	5
148	5
149	5
150	5
151	5

4. FLOWCHART


Start
Deklarasikan variabel vs, r, t, c, vo, tao, vo_baru, dt, arr[1000]
- Inisialisasikan nilai variabel vs=5, r=10000, c=0,000001, dt= 0,001,
t=0, vo_baru=0, vo=0, arr[0]=vo
tao=(r*c)
t<=151
False
Deklarasikan File*fp
Inisialisasi t=0
True
vo_baru=((vs+(vo_baru*tao/dt))/(1+
(tao/dt)))
arr[t]=(vo_baru)
-Membuka file txt
fp = fopen("kurva.txt", "w")
Output: variabel arr[t]
t<=151
False
Menutup file txt
fclose(fp)
True
Menuliskan variabel arr[t]
ke dalam file kurva.txt
End
t+=1
t+=1