

TP MODUL 4



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**PROGRAM STUDI S1 REKAYASA PERANGKAT LUNAK
TELKOM UNIVERSITY PURWOKERTO**

2025

1. Link github repository
https://github.com/rabaniaalya/KPL_ALYA_RABANI_2311104076_SE-07-02.git

2. Commit pertama

```
*****
** Visual Studio 2022 Developer Command Prompt v17.13.0
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*****

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git add .

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git commit -m "commit tp"
[main e91937d] commit tp
23 files changed, 364 insertions(+)
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/ProjectEvaluation/tpmodul4_2311104076.metadata.v9.bin
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/ProjectEvaluation/tpmodul4_2311104076.projects.v9.bin
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/ProjectEvaluation/tpmodul4_2311104076.strings.v9.bin
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/DesignTimeBuild/ dtbcache.v2
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/DesignTimeBuild/ faaba799-1e66-4195-a4ca-b1fe34c7f2c7.vsidx
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/v17/.fudcache.v2
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/v17/.suo
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/v17/DocumentLayout.backup.json
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\./vs/tpmodul4_2311104076/v17/DocumentLayout.json
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076.sln
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\Program.cs
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/.NETCoreApp,Version=v8.0.AssemblyAttributes.cs
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/tpmodul4_2311104076.AssemblyInfo.cs
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/tpmodul4_2311104076.AssemblyInfoInputs.cache
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/tpmodul4_2311104076.GeneratedMSBuildEditorConfig.ed
itorconfig
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/tpmodul4_2311104076.GlobalUsings.g.cs
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/Debug/net8.0/tpmodul4_2311104076.assets.cache
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/project.assets.json
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/project.nuget.cache
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/tpmodul4_2311104076.csproj.nuget.dgspec.json
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/tpmodul4_2311104076.csproj.nuget.g.props
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\obj/tpmodul4_2311104076.csproj.nuget.g.targets
create mode 100644 04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076\tpmodul4_2311104076\tpmodul4_2311104076.csproj

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git push origin main
Enumerating objects: 39, done.
Counting objects: 100% (39/39), done.
Delta compression using up to 12 threads
Compressing objects: 100% (35/35), done.
Writing objects: 100% (37/37), 55.32 MiB | 1.63 MiB/s, done.
Total 37 (delta 40), reused 5 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 1 local object.
To https://github.com/rabaniaalya/KPL_ALYA_RABANI_2311104076_SE-07-02.git
6446436..e91937d main -> main
```

3. SS dan penjelasan hasil run
 1. Menambahkan kode dengan teknik tabel-driven

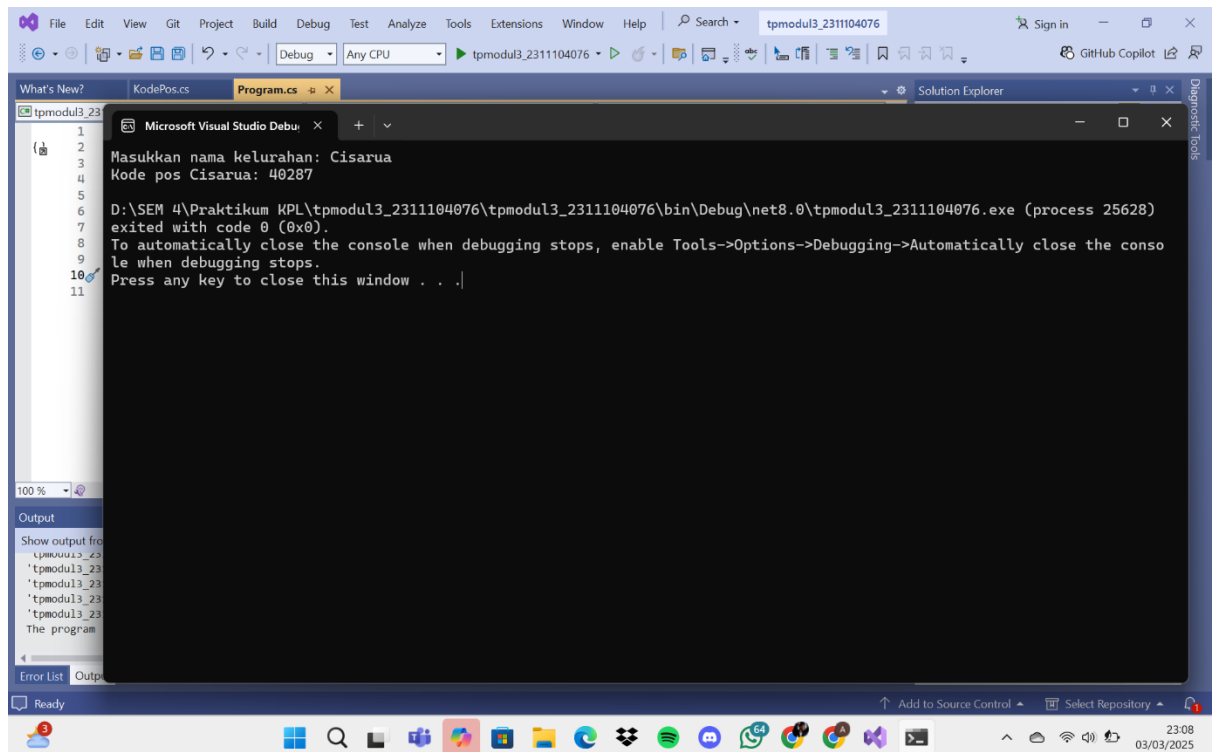
Teknik table-driven digunakan supaya kode lebih rapi dan nggak dipenuhi dengan banyak if-else atau switch-case. Cara kerjanya, program ini menyimpan daftar kelurahan beserta kode posnya dalam sebuah kamus data (dictionary). Ada sebuah method bernama GetKodePos yang bertugas mencari kode pos berdasarkan nama kelurahan. Kalau kelurahannya ada di dalam daftar, kode posnya ditampilkan. Tapi kalau nggak ditemukan, program akan mengembalikan angka -1 sebagai tanda error. Di bagian utama program, pengguna diminta memasukkan nama kelurahan. Kalau kelurahan tersebut ada dalam daftar, kode posnya ditampilkan. Kalau tidak, muncul pesan "Kelurahan tidak ditemukan!".

Kode program:

```
tpmodul3_2311104076 tpmodul3_2311104076.KodePos
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5 using System.Threading.Tasks;
6
7 namespace tpmodul3_2311104076
8 {
9     0 references
10    class KodePos
11    {
12        private Dictionary<string, string> tabelKodePos = new Dictionary<string, string>
13        {
14            {"Batununggal", "40266"},
15            {"Kujangsari", "40287"},
16            {"Mengger", "40267"},
17            {"Wates", "40256"},
18            {"Cisarua", "40287"},
19            {"Jatisari", "40286"},
20            {"Margasari", "40286"},
21            {"Sekejati", "40286"},
22            {"Kebonwaru", "40272"},
23            {"Maleer", "40274"},
24            {"Samoja", "40273"}
25        };
26
27        0 references
28        public string GetKodePos(string kelurahan)
29        {
30            if (tabelKodePos.ContainsKey(kelurahan))
31            {
32                return tabelKodePos[kelurahan];
33            }
34            else
35            {
36                return "Kode pos tidak ditemukan";
37            }
38        }
39    }
40 }

tpmodul3_2311104076 Program Main()
1 using System;
2 using tpmodul3_2311104076;
3
4 0 references
5 class Program
6 {
7     0 references
8     static void Main()
9     {
10         KodePos kodePos = new KodePos();
11
12         Console.Write("Masukkan nama kelurahan: ");
13         string kelurahan = Console.ReadLine();
14
15         string hasilKodePos = kodePos.GetKodePos(kelurahan);
16         Console.WriteLine($"Kode pos {kelurahan}: {hasilKodePos}");
17     }
18 }
```

Output dari program:



4. Commit kedua

```

*****
** Visual Studio 2022 Developer Command Prompt v17.13.0
** Copyright (c) 2022 Microsoft Corporation
*****

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git add .

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git commit -m "menambahkan implementasi dengan table driven"
[main 9d9e1ce] menambahkan implementasi dengan table driven
24 files changed, 110 insertions(+), 6 deletions(-)
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/.vs/tpmodul4_2311104076/FileContentIndex/74b677c8-1b23-423b-9c4a-f57967d96870.vsix
delete mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/.vs/tpmodul4_2311104076/FileContentIndex/faaba799-1e66-4195-a4ca-b1fe34c7f2c7.vsix
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.deps.json
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.dll
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.exe
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.pdb
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.runtimeconfig.json
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/apphost.exe
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/ref/tpmodul4_2311104076.dll
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/refint/tpmodul4_2311104076.dll
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.csproj.BuildWithSkipAnalyzers
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.csproj.CoreCompileInputs.cache
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.csproj.FileListAbsolute.txt
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.dll
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.genruntimeconfig.cache
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.pdb
create mode 108644 04_Automata_dan_Table-Driven_Construction/tpmodul4_2311104076/bin/Debug/net8.0/tpmodul4_2311104076.sourceLink.json

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git push origin main
Enumerating objects: 51, done.
Counting objects: 100% (51/51), done.
Delta compression using up to 12 threads
Compressing objects: 100% (31/31), done.
Writing objects: 100% (35/35), 80.79 KiB | 3.37 MiB/s, done.
Total 35 (delta 9), reused 2 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (9/9), completed with 8 local objects.
To https://github.com/rabaniaalya/KPL_ALYA_RABANI_2311104076_SE-07-02.git
e91937d..9d9e1ce main -> main

```

5. Menambahkan kode dengan Teknik state-based construction

Program ini pakai pendekatan state-based construction, yang artinya status pintu bisa berubah-ubah tergantung perintah pengguna. Ada dua status utama:

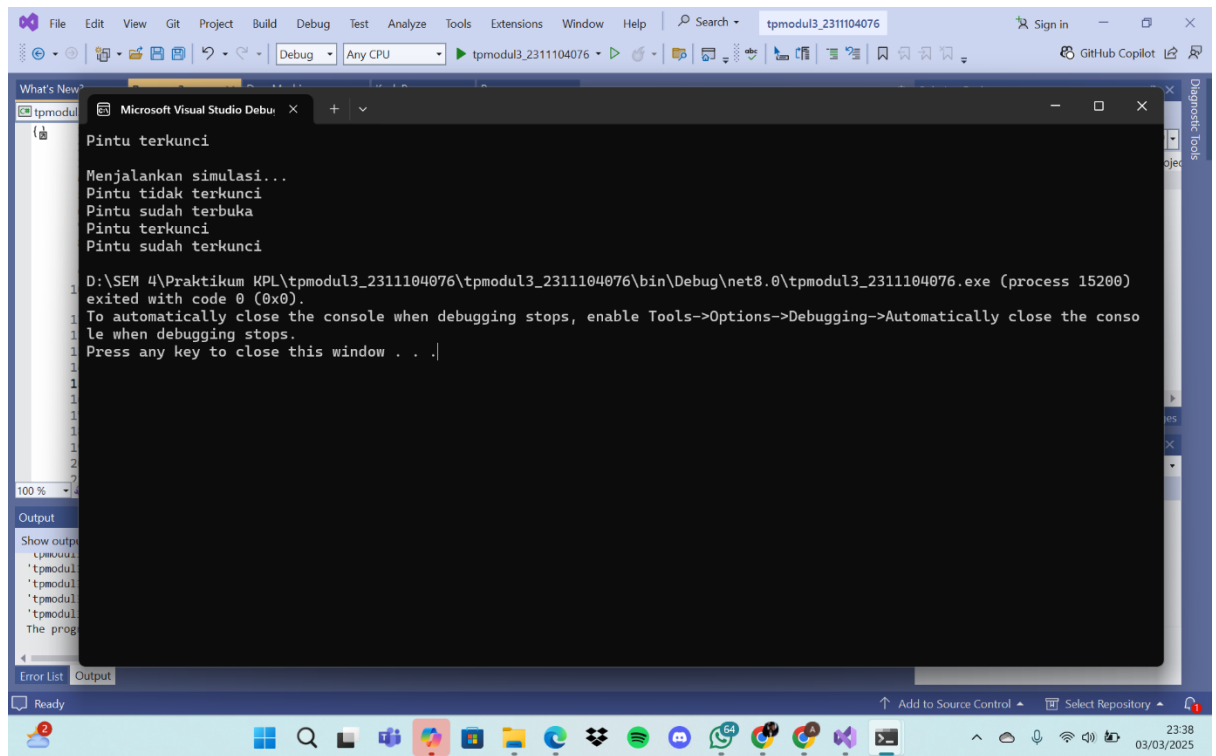
- Terkunci, yang menampilkan pesan "Pintu terkunci".
- Terbuka, yang menampilkan pesan "Pintu tidak terkunci".

Saat program pertama dijalankan, pintunya dalam keadaan terkunci. Kalau pengguna mengetik "toggle", pintunya berubah jadi terbuka, dan kalau mengetik "toggle" lagi, pintu akan terkunci kembali. Kalau pengguna mengetik "exit", program langsung berhenti. Kalau perintahnya nggak dikenali, program bakal menampilkan pesan "Perintah tidak dikenali!".

Kode program:

```
tpmodul3_2311104076 tpmodul3_2311104076.DoorMachine
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5 using System.Threading.Tasks;
6
7 namespace tpmodul3_2311104076
8 {
9     3 references
10     class DoorMachine
11     {
12         6 references
13         private enum State { Terkunci, Terbuka }
14         private State currentState;
15
16         1 reference
17         public DoorMachine()
18         {
19             currentState = State.Terkunci;
20             Console.WriteLine("Pintu terkunci");
21         }
22
23         2 references
24         public void BukaPintu()
25         {
26             if (currentState == State.Terkunci)
27             {
28                 currentState = State.Terbuka;
29                 Console.WriteLine("Pintu tidak terkunci");
30             }
31             else
32             {
33                 Console.WriteLine("Pintu sudah terbuka");
34             }
35         }
36
37         2 references
38         public void KunciPintu()
39         {
40             if (currentState == State.Terbuka)
41             {
42                 currentState = State.Terkunci;
43                 Console.WriteLine("Pintu terkunci");
44             }
45             else
46             {
47                 Console.WriteLine("Pintu sudah terkunci");
48             }
49         }
50     }
51 }
52
53 tpmodul3_2311104076 tpmodul3_2311104076.Program2
54 {
55     1 using System;
56     2 using System.Collections.Generic;
57     3 using System.Linq;
58     4 using System.Text;
59     5 using System.Threading.Tasks;
60
61     6 namespace tpmodul3_2311104076
62     {
63         0 references
64         class Program2
65         {
66             0 references
67             static void Main()
68             {
69                 DoorMachine pintu = new DoorMachine();
70
71                 Console.WriteLine("\nMenjalankan simulasi...");
72
73                 pintu.BukaPintu();
74                 pintu.BukaPintu();
75                 pintu.KunciPintu();
76                 pintu.KunciPintu();
77             }
78         }
79     }
80 }
```

Output dari program:



6. Commit ketiga

```
C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git add .

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git commit -m "menambahkan implementasi dengan state-based-construction"
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
  (commit or discard the untracked or modified content in submodules)
        modified:   ../03_GUI_Builder_dan_GitHub/tjmodul3_2311104076/.vs/tjmodul3_2311104076/v17/.suo
        modified:   ../03_GUI_Builder_dan_GitHub/tjmodul3_2311104076/.vs/tjmodul3_2311104076/v17/DocumentLayout.backup.json
        modified:   ../03_GUI_Builder_dan_GitHub/tjmodul3_2311104076/.vs/tjmodul3_2311104076/v17/DocumentLayout.json
        modified:   ../03_GUI_Builder_dan_GitHub/tjmodul3_2311104076/tjmodul3_2311104076/obj/Debug/DesignTimeResolveAssemblyReferencesInput.cache
        modified:   ../05_Generics/modul5_2311104076 (modified content, untracked content)
        modified:   ../06_Design_by_Contract_dan_Defensive_Programming/GUIDED/.vs/GUIDED/v17/.suo
        modified:   ../06_Design_by_Contract_dan_Defensive_Programming/tpmodul6_2311104076 (modified content)

no changes added to commit (use "git add" and/or "git commit -a")

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git commit -a
Aborting commit due to empty commit message.

C:\Users\Lenovo\source\repos\KPL_ALYA_RABANI_2311104076_SE-07-02\04_Automata_dan_Table-Driven_Construction\tpmodul4_2311104076>git push origin main
Enumerating objects: 53, done.
Counting objects: 100% (53/53), done.
Delta compression using up to 12 threads
Compressing objects: 100% (26/26), done.
Writing objects: 100% (29/29), 9.99 MiB | 1.11 MiB/s, done.
Total 29 (delta 15), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (15/15), completed with 14 local objects.
To https://github.com/rabania/alya/KPL_ALYA_RABANI_2311104076_SE-07-02.git
 9d9e1ce..ed5f015  main -> main
```