

NAMA : Radya Adi Anggara
NIM : 123190059
PLUG : C

RESPONSI PRAKTIKUM SCPK

(Jum'at, 25 Juni 2021 – Sabtu, 26 Juni 2021)

1. Weighted Product (WP)

a. Link Github WP :

https://github.com/PekumMaster/SCPK/tree/main/C_123190059_Responsi/WP

b. Langkah pembuatan program dan penjelasan

```
% --- Executes on button press in view.
function view_Callback(hObject, eventdata, handles)
% hObject handle to view (see GCBO)
% eventdata reserved - to be defined in a future version of MATLAB
% handles structure with handles and user data (see GUIDATA)
opts = detectImportOptions('Real_Estate.xlsx'); %mengimport file xlsx
opts.SelectedVariableNames = (1:5);
data = readmatrix('Real_Estate.xlsx', opts);
set(handles.tableData, 'data', data, 'visible', 'on'); %membaca file Real_Estate.xlsx dan menampilkan data pada tabel GUI

% --- Executes on button press in proses.
function proses_Callback(hObject, eventdata, handles)
% hObject handle to proses (see GCBO)
% eventdata reserved - to be defined in a future version of MATLAB
% handles structure with handles and user data (see GUIDATA)
opts = detectImportOptions('Real_Estate.xlsx'); %mengimport file xlsx
opts.SelectedVariableNames = (2:5);
data = readmatrix('Real_Estate.xlsx', opts);

k=[0,0,1,0]; %benefit dan cost
w=[3,5,4,1]; %bobot masing2 kriteria

[m n]=size (data); %inisialisasi ukuran matriks
w=w./sum(w); %membagi bobot masing2 kriteria dengan jumlah total seluruh bobot

for j=1:n, %perhitungan vektor(S) per baris (alternatif)
    if k(j)==0, w(j)=-1*w(j);
    end;
end;

for i=1:m,
    S(i)=prod(data(i,:).^w);
end;

V= S/sum(S) %perhitungan nilai vektor V

opts = detectImportOptions('Real_Estate.xlsx');
opts.SelectedVariableNames = (1);
baru = readmatrix('Real_Estate.xlsx', opts);
xlswrite('wpResult.xlsx', baru, 'Sheet1', 'A1'); %menulis data pada file kolom A1
V=V'; %merubah data hasil perhitungan dari matriks horizontal menjadi matriks vertikal
xlswrite('wpResult.xlsx', V, 'Sheet1', 'B1'); %menulis data pada file kolom B1

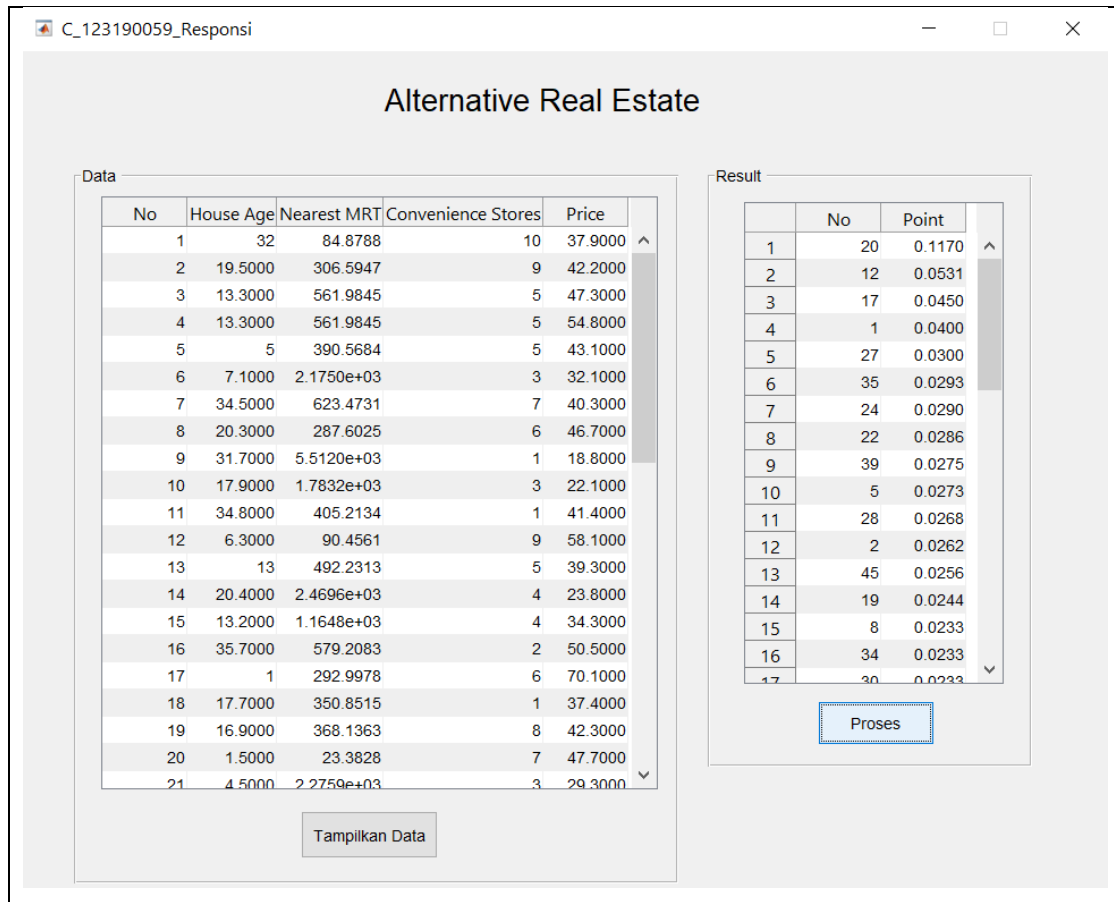
opts = detectImportOptions('wpResult.xlsx');
opts.SelectedVariableNames = (1:2);
data = readmatrix('wpResult.xlsx', opts); %membaca file wpResult.xlsx

X=sortrows(data,2,'descend'); %mengurutkan kolom kedua dari data dengan nilai paling besar
set(handles.tableResult, 'data', X, 'visible', 'on'); %menampilkan data yang telah diurutkan pada tabel GUI
```

Listing Program WP

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c. Screenshoot GUI



d. Pembuktian

Bobot Kriteria

Kode	Nama	Atribut
C1	House Age	Cost
C2	Nearest MRT	Cost
C3	Convenience Stores	Benefit
C4	Price	Cost

No	C1	C2	C3	C4
20	1.5	23.38284	7	47.7
12	6.3	90.45606	9	58.1
17	1	292.9978	6	70.1
1	32	84.87882	10	37.9
27	3.1	383.8624	5	56.2

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Normalisasi :

$$W1 = 3/(3+5+4+1) = 3/13$$

$$W2 = 5/(3+5+4+1) = 5/13$$

$$W3 = 4/(3+5+4+1) = 4/13$$

$$W4 = 1/(3+5+4+1) = 1/13$$

Karena W1, W2, W4 cost, maka nilainya dikalikan -1 saat menghitung S

$$S1 = (1.5^{-3/13}) * (23.38284^{-5/13}) * (7^{4/13}) * (47.7^{-1/13}) = 0.36625029064524395$$

$$S2 = (6.3^{-3/13}) * (90.45606^{-5/13}) * (9^{4/13}) * (58.1^{-1/13}) = 0.1663290066794$$

$$S3 = (1^{-3/13}) * (292.9978^{-5/13}) * (6^{4/13}) * (70.1^{-1/13}) = 0.14081822328715699$$

$$S4 = (32^{-3/13}) * (84.87882^{-5/13}) * (10^{4/13}) * (37.9^{-1/13}) = 0.12504614921091536$$

$$S5 = (3.1^{-3/13}) * (383.8624^{-5/13}) * (5^{4/13}) * (56.2^{-1/13}) = 0.09400863567362659$$

Menentukan Nilai Vektor V

$$V1 = 0.36625029064524395/0.89245230549634289 = 0.410$$

$$V2 = 0.1663290066794/0.89245230549634289 = 0.186$$

$$V3 = 0.14081822328715699/0.89245230549634289 = 0.157$$

$$V4 = 0.12504614921091536/0.89245230549634289 = 0.140$$

$$V5 = 0.09400863567362659/0.89245230549634289 = 0.105$$

Meranking Nilai Vektor V

Real estate no 20 (V1) = peringkat 1

Real estate no 12 (V2) = peringkat 2

Real estate no 7 (V3) = peringkat 3

Real estate no 1 (V4) = peringkat 4

Real estate no 27 (V5) = peringkat 5

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2. SAW

a. Link Github WP :

https://github.com/PekumMaster/SCPK/tree/main/C_123190059_Responsi/SAW

b. Langkah pembuatan program dan penjelasan

```
% --- Executes on button press in view.
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% hObject handle to view (see GCBO)
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% handles structure with handles and user data (see GUIDATA)
opts = detectImportOptions('Real_Estate.xlsx'); %mengimport file.xlsx
opts.SelectedVariableNames = (1:5);
data = readmatrix('Real_Estate.xlsx', opts);
set(handles.tableData, 'data', data, 'visible', 'on'); %membaca file Real_Estate.xlsx dan menampilkan data pada tabel GUI

% --- Executes on button press in procces.
function procces_Callback(hObject, eventdata, handles)
% hObject handle to procces (see GCBO)
% eventdata reserved - to be defined in a future version of MATLAB
% handles structure with handles and user data (see GUIDATA)
opts = detectImportOptions('Real_Estate.xlsx'); %mengimport file.xlsx
opts.SelectedVariableNames = (2:5);
data = readmatrix('Real_Estate.xlsx', opts);

k=[0,0,1,0]; %benefit dan cost
w=[3,5,4,1]; %bobot masing2 kriteria

[m n]=size(data); %inisialisasi ukuran matriks
w=w./sum(w); %membagi bobot masing2 kriteria dengan jumlah total seluruh bobot

for j=1:n, %perhitungan vektor(S) per baris (alternatif)
    if k(j)==0, w(j)=-1*w(j);
    end;
end;
for i=1:m,
    S(i)=prod(data(i,:)'.^w);
end;

V = S/sum(S) %perhitungan nilai vektor V

opts = detectImportOptions('Real_Estate.xlsx');
opts.SelectedVariableNames = (1);
baru = readmatrix('Real_Estate.xlsx', opts);
xlswrite('wpResult.xlsx', baru, 'Sheet1', 'A1'); %menulis data pada file kolom A1
V=V'; %merubah data hasil perhitungan dari matriks horizontal menjadi matriks vertikal
xlswrite('wpResult.xlsx', V, 'Sheet1', 'B1'); %menulis data pada file kolom B1

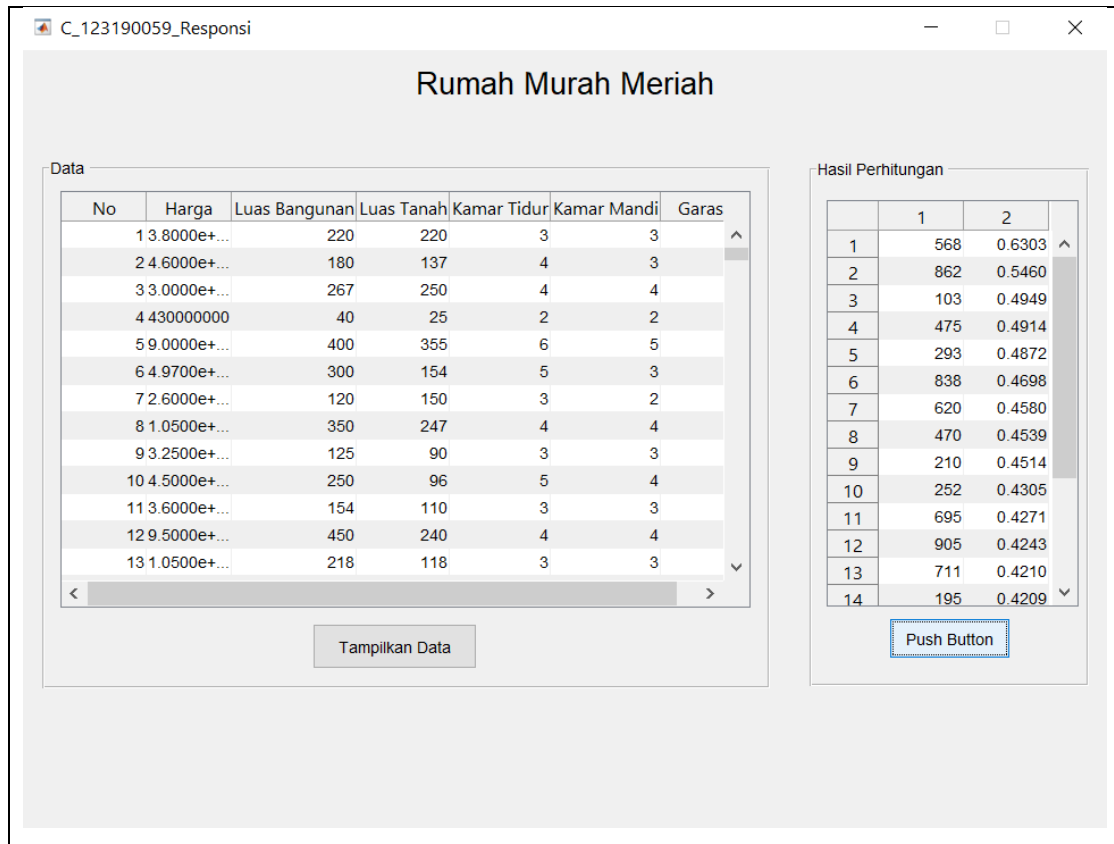
opts = detectImportOptions('wpResult.xlsx');
opts.SelectedVariableNames = (1:2);
data = readmatrix('wpResult.xlsx', opts); %membaca file wpResult.xlsx

X=sortrows(data,2,'descend'); %mengurutkan kolom kedua dari data dengan nilai paling besar
set(handles.tableResult, 'data', X, 'visible', 'on'); %menampilkan data yang telah diurutkan pada tabel GUI
```

Listing Program SAW

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c. Screenshoot GUI



d. Pembuktian

Bobot kriteria :

Kode	Nama	Atribut	Bobot
C1	Harga	Cost	0.3
C2	Luas Bangunan	Benefit	0.2
C3	Luas Tanah	Benefit	0.23
C4	Jumlah Kamar Tidur	Benefit	0.1
C5	Jumlah Kamar Mandi	Benefit	0.07
C6	Jumlah Garasi	Benefit	0.1
Jumlah			1

No Rumah	C1	C2	C3	C4	C5	C6
568	35000000000	1000	1400	10	7	7
862	25000000000	600	1000	10	10	10
103	15000000000	800	1225	6	9	2
475	55000000000	1126	1224	4	4	2
293	22900000000	600	1039	7	5	10

Normalisasi :

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i Untuk C1 :

$$568 = 430.000.000/35.000.000.000 = 0.012$$

$$862 = 430.000.000/25.000.000.000 = 0.017$$

$$103 = 430.000.000/15.000.000.000 = 0.029$$

$$475 = 430.000.000/55.000.000.000 = 0.009$$

$$293 = 430.000.000/25.900.000.000 = 0.017$$

ii Untuk C2 :

$$568 = 1000/1126 = 0.888$$

$$862 = 600/1126 = 0.533$$

$$103 = 800/1126 = 0.711$$

$$475 = 1126/1126 = 1$$

$$293 = 600/1126 = 0.533$$

iii Untuk C3

$$568 = 1400/1400 = 1$$

$$862 = 1000/1400 = 0.714$$

$$103 = 1225/1400 = 0.875$$

$$475 = 1224/1400 = 0.874$$

$$293 = 1039/1400 = 0.742$$

iv Untuk C4

$$568 = 10/10 = 1$$

$$862 = 10/10 = 1$$

$$103 = 6/10 = 0.6$$

$$475 = 4/10 = 0.4$$

$$293 = 7/10 = 0.7$$

v Untuk C5

$$568 = 7/10 = 0.7$$

$$862 = 10/10 = 1$$

$$103 = 9/10 = 0.9$$

$$475 = 4/10 = 0.4$$

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$$293 = 5/10 = 0.5$$

vi Untuk C6

$$568 = 7/10 = 0.7$$

$$862 = 10/10 = 1$$

$$103 = 2/10 = 0.2$$

$$475 = 2/10 = 0.2$$

$$293 = 10/10 = 1$$

Perhitungan

No	C1	C2	C3	C4	C5	C6	Total	Rangking
568	0.012	0.888	1	1	0.7	0.7	0.6303	1
862	0.017	0.533	0.714	1	0.1	1	0.54592	2
103	0.029	0.711	0.875	0.6	0.9	0.2	0.49515	3
475	0.009	0.1	0.874	0.4	0.4	0.2	0.49172	4
293	0.017	0.533	0.742	0.7	0.5	1	0.48736	5