

**LAPORAN E-UAS
PRAKTIKUM ALGORITMA DAN STRUKTUR DATA**



Nama	:	Daffa Putra Alwansyah
NIM	:	L200190031
Kelas	:	B
Pengampu	:	Dimas Aryo Anggoro
Ruang, No. Kursi	:	HOME,34
Topik Permasalahan	:	Bubble Sort
Mata Kuliah	:	Praktikum Algoritma dan Struktur Data

**FAKULTAS KOMUNIKASI DAN INFORMATIKA
UNIVERSITAS MUHAMMADIYAH SURAKARTA**

Topik: Bubble Sort

Membuat program pengurutan teknik Bubble Sort berdasarkan:

- Huruf alphabet dari kolom tempat pertandingan
- Waktu pertandingan awal ke akhir, dan sebaliknya

Jadwal Pertandingan Piala Dunia 2018

Pertandingan / Match	Tempat / Venue	Waktu / Time
Russia – Saudi Arabia	Moskwa Luzhniki	14 June 2018, 22.00
Egypt – Uruguay	Yekaterinburg	15 June 2018, 19.00
Russia – Egypt	St. Petersburg	20 June 2018, 01.00
Uruguay – Saudi Arabia	Rostov-on-Don	20 June 2018, 22.00
Saudi Arabia – Egypt	Vologorad	25 June 2018, 21.00
Uruguay – Russia	Samara	25 June 2018, 21.00
Portugal – Spain	Sochi	16 June 2018, 01.00
Morocco – Iran	St. Petersburg	15 June 2018, 22.00
Portugal – Morocco	Moskwa Luzhniki	20 June 2018, 19.00
Iran – Spain	Kazan	21 June 2018, 01.00
Spain – Morocco	Kaliningrad	26 June 2018, 01.00
Iran – Portugal	Saransk	26 June 2018, 01.00
France – Australia	Kazan	16 June 2018, 17.00
Peru – Denmark	Saransk	16 June 2018, 23.00
France – Peru	Yekaterinburg	21 June 2018, 22.00
Denmark – Australia	Samara	21 June 2018, 19.00
Denmark – France	Moskwa Luzhniki	26 June 2018, 21.00
Australia – Peru	Sochi	26 June 2018, 21.00
Argentina – Iceland	Moskwa Spartak	16 June 2018, 20.00
Croatia – Nigeria	Kaliningrad	17 June 2018, 02.00
Argentina – Croatia	Nizhni Novgorod	22 June 2018, 01.00
Nigeria – Iceland	Volgograd	22 June 2018, 22.00
Iceland – Croatia	Rostov-on-Don	27 June 2018, 01.00
Nigeria – Argentina	St. Petersburg	27 June 2018, 01.00
Brazil – Switzerland	Rostov-on-Don	18 June 2018, 01.00
Costa Rica – Serbia	Samara	17 June 2018, 19.00
Brazil – Costa Rica	St. Petersburg	22 June 2018, 19.00
Serbia – Switzerland	Kaliningrad	23 June 2018, 01.00
Serbia – Brazil	Moskwa Spartak	28 June 2018, 01.00
Switzerland – Costa Rica	Nizhni Novgorod	28 June 2018, 01.00
Germany – Mexico	Moskwa Luzhniki	17 June 2018, 22.00
Sweden – South Korea	Nizhni Novgorod	18 June 2018, 19.00
Germany – Sweden	Sochi	24 June 2018, 01.00
South Korea – Mexico	Rostov-on-Don	23 June 2018, 22.00
South Korea – Germany	Kazan	27 June 2018, 21.00
Mexico – Sweden	Yekaterinburg	27 June 2018, 21.00
Belgium – Panama	Sochi	18 June 2018, 22.00
Tunisia – England	Volovograd	19 June 2018, 01.00

Belgium – Tunisia	Moskwa Spartak	23 June 2018, 19.00
England – Panama	Nizhni Novgorod	24 June 2018, 19.00
England – Belgium	Kaliningrad	29 June 2018, 01.00
Poland – Senegal	Moskwa Spartak	19 June 2018, 22.00
Colombia – Japan	Saransk	19 June 2018, 19.00
Japan – Senegal	Yekaterinburg	24 June 2018, 22.00
Poland – Colombia	Kazan	25 June 2018, 01.00
Japan – Poland	Volgograd	28 June 2018, 21.00
Senegal – Colombia	Samara	28 June 2018, 21.00

Kode Program:

##Daffa Putra Alwansyah (L200190031)

```
from prettytable import PrettyTable #import pretty tabble biar rapi
import pandas as pd #import library pandas untuk import file xlsx
```

#membuat variabel untuk membaca excel

```
df = pd.read_excel(r'./pertandingan.xlsx', engine='openpyxl')
```

#merubah kelist

```
df_list = df.values.tolist()
```

#membuat perulangan input user

while True:

```
    print("===Menu Pilihan===")
```

```
    print("Masukan 1 untuk mengurutkan tempat")
```

```
    print("Masukan 2 untuk mengurutkan waktu awal ke akhir")
```

```
    print("Masukan 3 untuk mengurutkan waktu akhir ke awal")
```

```
    print("Masukan 4 untuk keluar aplikasi")
```

#membuat variabel input

```
    input_menu = int(input("Masukan menu pilihan:"))
```

#membuat kelas dan function init pildun

```
class pildun:
```

```
    def __init__(self,pick):
```

```
        self.negara = pick[0]
```

```
        self.tempat = pick[1]
```

```
        self.waktu = pick[2]
```

#membuat variabel table agar output masuk ke tabel

```
table = PrettyTable(["Pertandingan","Tempat","Jadwal"])
```

#membuat list kosong

```
list_pd = []
```

#membuat perulangan untuk mengappend

```
for i in range(len(df_list)):
```

```
    list_pd.append(pildun(df_list[i]))
```

#Algoritma mengurutkan tempat

#membuat kondisi untuk user saat melakukan input

```
if input_menu ==1:
```

```
    def sort_place(data):
```

```
        x = len(data)
```

```

    for i in range (x):
        for j in range(0,x-1,1):
            #jika index kiri lebih besar dari index kanan maka swap
            if data[j].tempat > data[j+1].tempat:
                #swap langsung
                data[j], data[j+1] = data[j+1], data[j]
    sort_place(list_pd)
    #melakukan add pada row table
    for i in list_pd:
        table.add_row([i.negara, i.tempat, i.waktu])
    print(table)
#Algoritma mengurutkan waktu awal ke akhir
    #membuat kondisi untuk user saat melakukan input
    if input_menu == 2:
        def sort_place(data):
            x = len(data)
            for i in range (x):
                for j in range(0,x-1,1):
                    #jika index kiri lebih besar dari index kanan maka swap
                    if data[j].waktu > data[j+1].waktu:
                        #swap langsung
                        data[j], data[j+1] = data[j+1], data[j]
        sort_place(list_pd)
        #melakukan add pada row table
        for i in list_pd:
            table.add_row([i.negara, i.tempat, i.waktu])
        print(table)

#Algoritma mengurutkan waktu akhir ke awal
    #membuat kondisi untuk user saat melakukan input
    if input_menu == 3:
        def sort_place(data):
            x = len(data)
            for i in range (x):
                for j in range(0,x-1,1):
                    #jika index kiri lebih kecil dari index kanan maka swap
                    if data[j].waktu < data[j+1].waktu:
                        #swap langsung
                        data[j], data[j+1] = data[j+1], data[j]
        sort_place(list_pd)
        #melakukan add pada row table
        for i in list_pd:
            table.add_row([i.negara, i.tempat, i.waktu])
        print(table)
#Algoritma keluar aplikasi
    #membuat kondisi untuk user saat melakukan input
    if input_menu == 4:
        print("Keluar Aplikasi")
        break

```

Output:

1. Jika kode dirun

```
===== RESTART: C:\Kuliah\
===Menu Pilihan===
Masukan 1 untuk mengurutkan tempat
Masukan 2 untuk mengurutkan waktu awal ke akhir
Masukan 3 untuk mengurutkan waktu akhir ke awal
Masukan 4 untuk keluar aplikasi
Masukan menu pilihan:
```

2. Saat user memilih angka 1 (mengurutkan tempat)

```
===== RESTART: C:\Kuliah\
===Menu Pilihan===
Masukan 1 untuk mengurutkan tempat
Masukan 2 untuk mengurutkan waktu awal ke akhir
Masukan 3 untuk mengurutkan waktu akhir ke awal
Masukan 4 untuk keluar aplikasi
Masukan menu pilihan:1
Squeezed text (51 lines).
```

Pertandingan	Tempat	Jadwal
Spain - Morocco	Kaliningrad	26 June 2018, 01.00
Croatia - Nigeria	Kaliningrad	17 June 2018, 02.00
Serbia - Switzerland	Kaliningrad	23 June 2018, 01.00
England - Belgium	Kaliningrad	29 June 2018, 01.00
Iran - Spain	Kazan	21 June 2018, 01.00
France - Australia	Kazan	16 June 2018, 17.00
South Korea - Germany	Kazan	27 June 2018, 21.00
Poland - Colombia	Kazan	25 June 2018, 01.00
Russia - Saudi Arabia	Moskwa Luzhniki	14 June 2018, 22.00
Portugal - Morocco	Moskwa Luzhniki	20 June 2018, 19.00
Denmark - France	Moskwa Luzhniki	26 June 2018, 21.00
Germany - Mexico	Moskwa Luzhniki	17 June 2018, 22.00
Argentina - Iceland	Moskwa Spartak	16 June 2018, 20.00
Serbia - Brazil	Moskwa Spartak	28 June 2018, 01.00
Belgium - Tunisia	Moskwa Spartak	23 June 2018, 19.00
Poland - Senegal	Moskwa Spartak	19 June 2018, 22.00
Argentina - Croatia	Nizhni Novgorod	22 June 2018, 01.00
Switzerland - Costa Rica	Nizhni Novgorod	28 June 2018, 01.00
Sweden - South Korea	Nizhni Novgorod	18 June 2018, 19.00
England - Panama	Nizhni Novgorod	24 June 2018, 19.00
Uruguay - Saudi Arabia	Rostov-on-Don	20 June 2018, 22.00
Iceland - Croatia	Rostov-on-Don	27 June 2018, 01.00
Brazil - Switzerland	Rostov-on-Don	18 June 2018, 01.00
South Korea - Mexico	Rostov-on-Don	23 June 2018, 22.00
Uruguay - Russia	Samara	25 June 2018, 21.00
Denmark - Australia	Samara	21 June 2018, 19.00
Costa Rica - Serbia	Samara	17 June 2018, 19.00
Senegal - Colombia	Samara	28 June 2018, 21.00
Iran - Portugal	Saransk	26 June 2018, 01.00
Peru - Denmark	Saransk	16 June 2018, 23.00
Colombia - Japan	Saransk	19 June 2018, 19.00
Portugal - Spain	Sochi	16 June 2018, 01.00
Australia - Peru	Sochi	26 June 2018, 21.00
Germany - Sweden	Sochi	24 June 2018, 01.00
Belgium - Panama	Sochi	18 June 2018, 22.00
Russia - Egypt	St. Petersburg	20 June 2018, 01.00
Morocco - Iran	St. Petersburg	15 June 2018, 22.00
Nigeria - Argentina	St. Petersburg	27 June 2018, 01.00
Brazil - Costa Rica	St. Petersburg	22 June 2018, 19.00
Nigeria - Iceland	Volgograd	22 June 2018, 22.00
Japan - Poland	Volgograd	28 June 2018, 21.00

Saudi Arabia - Egypt	Vologorad	25 June 2018, 21.00
Tunisia - England	Volovograd	19 June 2018, 01.00
Egypt - Uruguay	Yekaterinburg	15 June 2018, 19.00
France - Peru	Yekaterinburg	21 June 2018, 22.00
Mexico - Sweden	Yekaterinburg	27 June 2018, 21.00
Japan - Senegal	Yekaterinburg	24 June 2018, 22.00

3. Saat user memilih angka 2 (untuk mengurutkan waktu awal ke akhir/Ascending)

===Menu Pilihan===

Masukan 1 untuk mengurutkan tempat

Masukan 2 untuk mengurutkan waktu awal ke akhir

Masukan 3 untuk mengurutkan waktu akhir ke awal

Masukan 4 untuk keluar aplikasi

Masukan menu pilihan:2

Squeezed text (51 lines).

Pertandingan	Tempat	Jadwal
Russia - Saudi Arabia	Moskwa Luzhniki	14 June 2018, 22.00
Egypt - Uruguay	Yekaterinburg	15 June 2018, 19.00
Morocco - Iran	St. Petersburg	15 June 2018, 22.00
Portugal - Spain	Sochi	16 June 2018, 01.00
France - Australia	Kazan	16 June 2018, 17.00
Argentina - Iceland	Moskwa Spartak	16 June 2018, 20.00
Peru - Denmark	Saransk	16 June 2018, 23.00
Croatia - Nigeria	Kaliningrad	17 June 2018, 02.00
Costa Rica - Serbia	Samara	17 June 2018, 19.00
Germany - Mexico	Moskwa Luzhniki	17 June 2018, 22.00
Brazil - Switzerland	Rostov-on-Don	18 June 2018, 01.00
Sweden - South Korea	Nizhni Novgorod	18 June 2018, 19.00
Belgium - Panama	Sochi	18 June 2018, 22.00
Tunisia - England	Volovograd	19 June 2018, 01.00
Colombia - Japan	Saransk	19 June 2018, 19.00
Poland - Senegal	Moskwa Spartak	19 June 2018, 22.00
Russia - Egypt	St. Petersburg	20 June 2018, 01.00
Portugal - Morocco	Moskwa Luzhniki	20 June 2018, 19.00
Uruguay - Saudi Arabia	Rostov-on-Don	20 June 2018, 22.00
Iran - Spain	Kazan	21 June 2018, 01.00
Denmark - Australia	Samara	21 June 2018, 19.00
France - Peru	Yekaterinburg	21 June 2018, 22.00
Argentina - Croatia	Nizhni Novgorod	22 June 2018, 01.00
Brazil - Costa Rica	St. Petersburg	22 June 2018, 19.00
Nigeria - Iceland	Volgograd	22 June 2018, 22.00
Serbia - Switzerland	Kaliningrad	23 June 2018, 01.00
Belgium - Tunisia	Moskwa Spartak	23 June 2018, 19.00
South Korea - Mexico	Rostov-on-Don	23 June 2018, 22.00
Germany - Sweden	Sochi	24 June 2018, 01.00
England - Panama	Nizhni Novgorod	24 June 2018, 19.00
Japan - Senegal	Yekaterinburg	24 June 2018, 22.00
Poland - Colombia	Kazan	25 June 2018, 01.00
Saudi Arabia - Egypt	Vologorad	25 June 2018, 21.00
Uruguay - Russia	Samara	25 June 2018, 21.00
Spain - Morocco	Kaliningrad	26 June 2018, 01.00
Iran - Portugal	Saransk	26 June 2018, 01.00
Denmark - France	Moskwa Luzhniki	26 June 2018, 21.00
Australia - Peru	Sochi	26 June 2018, 21.00
Iceland - Croatia	Rostov-on-Don	27 June 2018, 01.00
Nigeria - Argentina	St. Petersburg	27 June 2018, 01.00
South Korea - Germany	Kazan	27 June 2018, 21.00

Mexico - Sweden	Yekaterinburg	27 June 2018, 21.00	
Serbia - Brazil	Moskwa Spartak	28 June 2018, 01.00	
Switzerland - Costa Rica	Nizhni Novgorod	28 June 2018, 01.00	
Japan - Poland	Volgograd	28 June 2018, 21.00	
Senegal - Colombia	Samara	28 June 2018, 21.00	
England - Belgium	Kaliningrad	29 June 2018, 01.00	
+-----+-----+-----+			

4. Saat user memilih angka 3 (untuk mengurutkan waktu akhir ke awal/Descending)

===Menu Pilihan===

Masukan 1 untuk mengurutkan tempat

Masukan 2 untuk mengurutkan waktu awal ke akhir

Masukan 3 untuk mengurutkan waktu akhir ke awal

Masukan 4 untuk keluar aplikasi

Masukan menu pilihan:3

Squeezed text (51 lines).

+-----+-----+-----+			
Pertandingan		Tempat	Jadwal
+-----+-----+-----+			
England - Belgium	Kaliningrad	29 June 2018, 01.00	
Japan - Poland	Volgograd	28 June 2018, 21.00	
Senegal - Colombia	Samara	28 June 2018, 21.00	
Serbia - Brazil	Moskwa Spartak	28 June 2018, 01.00	
Switzerland - Costa Rica	Nizhni Novgorod	28 June 2018, 01.00	
South Korea - Germany	Kazan	27 June 2018, 21.00	
Mexico - Sweden	Yekaterinburg	27 June 2018, 21.00	
Iceland - Croatia	Rostov-on-Don	27 June 2018, 01.00	
Nigeria - Argentina	St. Petersburg	27 June 2018, 01.00	
Denmark - France	Moskwa Luzhniki	26 June 2018, 21.00	
Australia - Peru	Sochi	26 June 2018, 21.00	
Spain - Morocco	Kaliningrad	26 June 2018, 01.00	
Iran - Portugal	Saransk	26 June 2018, 01.00	
Saudi Arabia - Egypt	Vologorad	25 June 2018, 21.00	
Uruguay - Russia	Samara	25 June 2018, 21.00	
Poland - Colombia	Kazan	25 June 2018, 01.00	
Japan - Senegal	Yekaterinburg	24 June 2018, 22.00	
England - Panama	Nizhni Novgorod	24 June 2018, 19.00	
Germany - Sweden	Sochi	24 June 2018, 01.00	
South Korea - Mexico	Rostov-on-Don	23 June 2018, 22.00	
Belgium - Tunisia	Moskwa Spartak	23 June 2018, 19.00	
Serbia - Switzerland	Kaliningrad	23 June 2018, 01.00	
Nigeria - Iceland	Volgograd	22 June 2018, 22.00	
Brazil - Costa Rica	St. Petersburg	22 June 2018, 19.00	
Argentina - Croatia	Nizhni Novgorod	22 June 2018, 01.00	
France - Peru	Yekaterinburg	21 June 2018, 22.00	
Denmark - Australia	Samara	21 June 2018, 19.00	
Iran - Spain	Kazan	21 June 2018, 01.00	
Uruguay - Saudi Arabia	Rostov-on-Don	20 June 2018, 22.00	
Portugal - Morocco	Moskwa Luzhniki	20 June 2018, 19.00	
Russia - Egypt	St. Petersburg	20 June 2018, 01.00	
Poland - Senegal	Moskwa Spartak	19 June 2018, 22.00	
Colombia - Japan	Saransk	19 June 2018, 19.00	
Tunisia - England	Volovograd	19 June 2018, 01.00	
Belgium - Panama	Sochi	18 June 2018, 22.00	
Sweden - South Korea	Nizhni Novgorod	18 June 2018, 19.00	
Brazil - Switzerland	Rostov-on-Don	18 June 2018, 01.00	
Germany - Mexico	Moskwa Luzhniki	17 June 2018, 22.00	
Costa Rica - Serbia	Samara	17 June 2018, 19.00	
Croatia - Nigeria	Kaliningrad	17 June 2018, 02.00	
Peru - Denmark	Saransk	16 June 2018, 23.00	

	Argentina - Iceland		Moskwa Spartak		16 June 2018, 20.00	
	France - Australia		Kazan		16 June 2018, 17.00	
	Portugal - Spain		Sochi		16 June 2018, 01.00	
	Morocco - Iran		St. Petersburg		15 June 2018, 22.00	
	Egypt - Uruguay		Yekaterinburg		15 June 2018, 19.00	
	Russia - Saudi Arabia		Moskwa Luzhniki		14 June 2018, 22.00	
+-----+-----+-----+						

5. Saat user memilih angka 4 (Keluar Aplikasi)

```

===Menu Pilihan===
Masukan 1 untuk mengurutkan tempat
Masukan 2 untuk mengurutkan waktu awal ke akhir
Masukan 3 untuk mengurutkan waktu akhir ke awal
Masukan 4 untuk keluar aplikasi
Masukan menu pilihan:4
Keluar Aplikasi
>>> |

```