



**BADAN PUSAT STATISTIK
PROVINSI SUMATERA UTARA**

POLITEKNIK STATISTIKA STIS
For Better Official Statistics



NGORBIT: NGOBROL BIDANG IT

Interoperabilitas Data Web BPS Provinsi Sumatera Utara melalui Pemanfaatan API Web BPS

Rabu
11 September
2024
Pukul 09.00 wib

Fungsi Integrasi Pengolahan
dan Diseminasi Statistik



Agenda

- I Pengantar WebAPI BPS
- II Tahapan Registrasi WebAPI BPS -> Berhasil membuat akun developer, dapat login dan membuat token aplikasi spesifik, tanya jawab
- III Dokumentasi WebAPI -> Jenis-jenis service yang tersedia (master, list, view, search), penjelasan parameter yang digunakan, tatacara request, parameter request dan parameter balikan, tanya jawab
- IV Implementasi pada Microsoft Excel
- V Tanya Jawab dan Penutup

Pengenalan WebAPI BPS

- WebAPI BPS merupakan salah satu jenis **Pelayanan Statistik Terpadu (PST)** yang bersifat online oleh Badan Pusat Statistik.
- Salah satu layanan interoperabilitas data dengan scope data website BPS yang bersifat publik.
- Kebutuhan akses data BPS oleh sistem lain, baik dari instansi pemerintah maupun swasta, dapat dilakukan dan **bisa menjadi salah satu jenis skema pertukaran data.**





Pengenalan WebAPI BPS

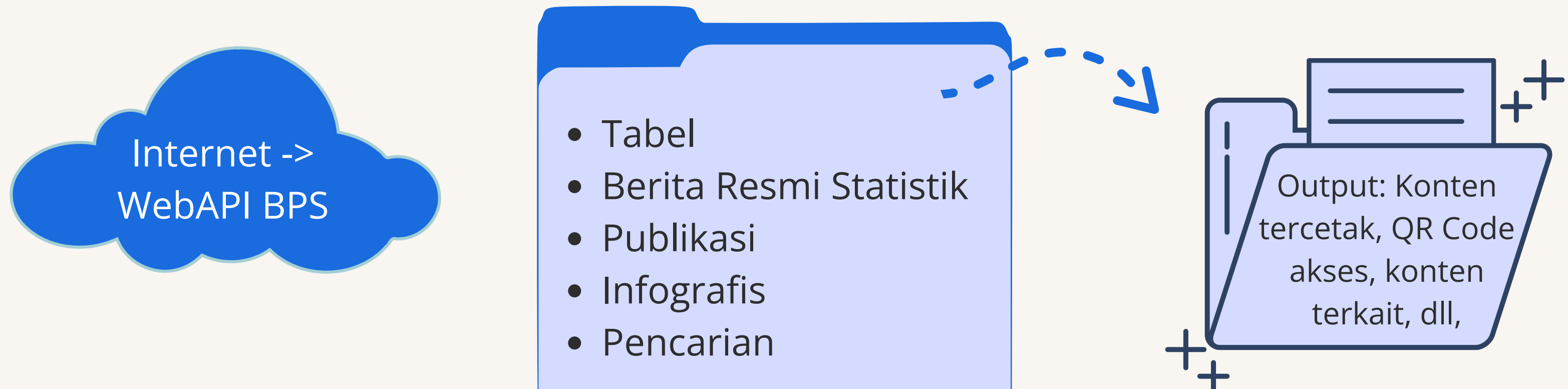


- Dengan memahami (*aware*) bahwa pelayanan ini bersifat publik dan adanya peningkatan inovasi, diharapkan dapat semakin **meningkatkan konten website BPS** menjadi lebih baik lagi.
- **Peningkatan kualitas pelayanan publik**



Contoh inovasi yang mungkin...

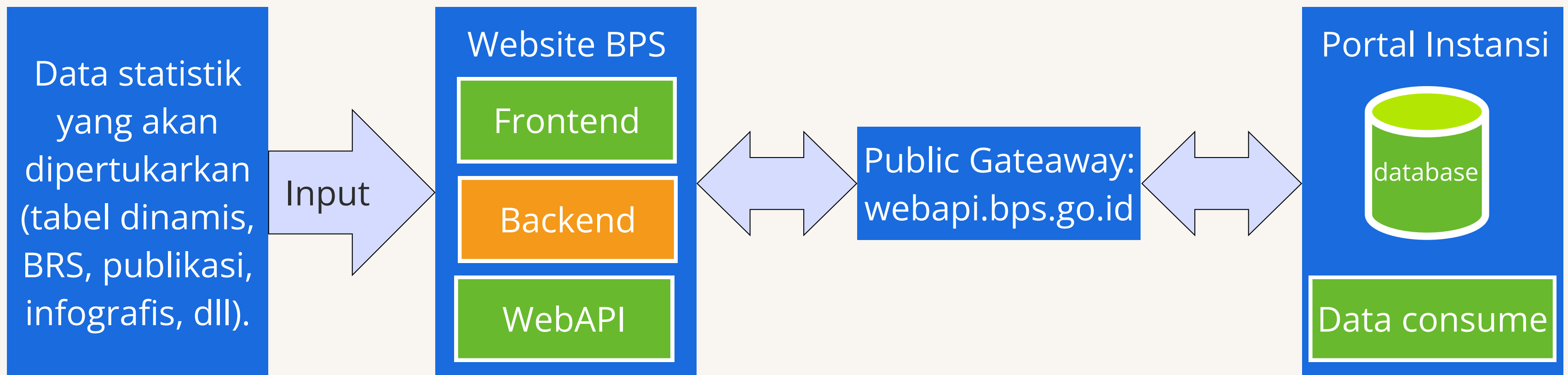
- ATM Data BPS berbasis Web API atau berbasis web dan dekstop
- Data selalu update mengikuti update data di website BPS





Contoh inovasi yang mungkin...

- Pertukaran data dengan sistem dari instansi terkait (eg: portal satu data kewilayahan)





Contoh inovasi yang mungkin...

- Aplikasi repositori data spesifik (kumpulan infografis, kumpulan BRS, kumpulan publikasi tertentu, dll)
- Aplikasi website BPS berbasis WebAPI
- Aplikasi permintaan data website BPS berbasis aplikasi chat (WA/Telegram)
- dan sebagainya.

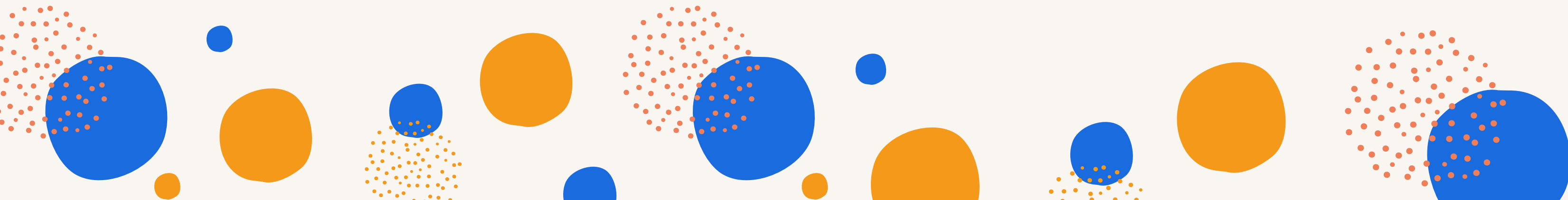


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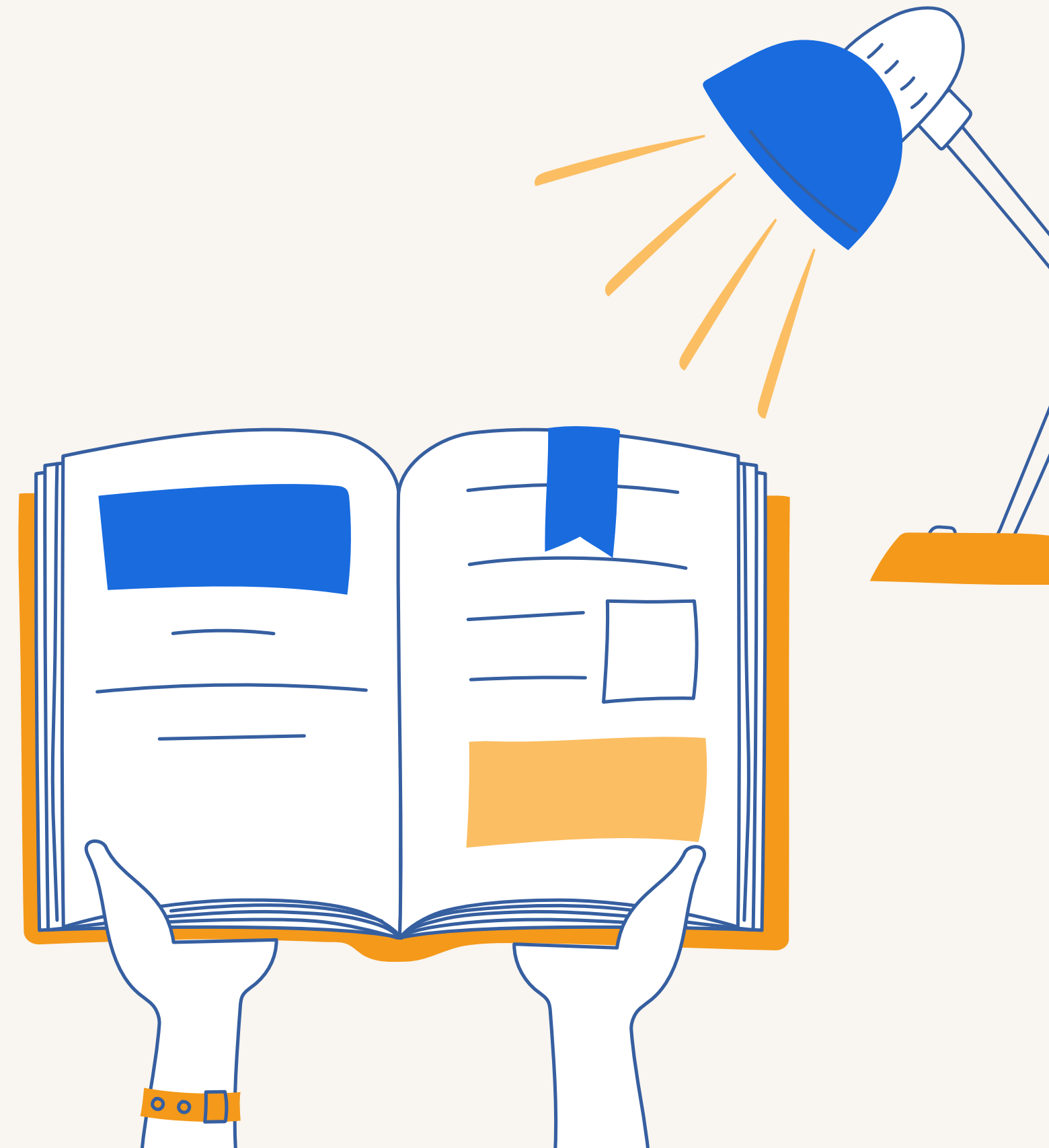
Pengantar WebAPI BPS





API

API (Aplication Programming Interface) adalah sebuah antarmuka yang memungkinkan **dua aplikasi atau sistem yang berbeda berkomunikasi satu sama lain**. Dengan API, aplikasi tidak perlu memahami detail dari cara kerja sistem lainnya selama mengikuti aturan yang telah ditentukan oleh API tersebut.





Kegunaan API

1. Integrasi antar aplikasi
2. Akses data dan layanan
3. Otomatisasi tugas
4. Peningkatan skalabilitas
5. Sistem keamanan terpusat





Implementasi API

- Bahasa Pemrograman
- Library atau Framework
- Sistem Operasi
- Web API





Web API

Implementasi API pada aplikasi Web API memungkinkan **komunikasi antara server dan client melalui protokol HTTP**.

Salah satu implementasi umum dari Web API adalah penggunaan REST API (Representational State Transfer Application Programming Interface).





Representational State Transfer Application Programming Interface

REST API memiliki konsep utama

1. Arsitektur Klien-Server
2. Stateless
3. Cacheable
4. Uniform Interface
5. Layered System
6. Representasi Sumber Daya





Representational State Transfer Application Programming Interface

REST API memiliki keuntungan

1. Sederhana
2. Skalabel
3. Interoperabilitas
4. Fleksibel





Metode HTTP

- GET GET /api/products
- POST POST /api/products
Body: { "name": "Laptop", "price": 15000000 }
- PUT PUT /api/products/1
Body: { "name": "Laptop Pro", "price": 20000000 }
- PATCH PATCH /api/products/1
Body: { "price": 18000000 }
- DELETE DELETE /api/products/1





Best Practice

1. Gunakan HTTP Methods dengan tepat
2. Gunakan Status Kode HTTP yang sesuai
3. Gunakan URL yang konsisten dan deskriptif
4. Gunakan JSON sebagai format respons
5. Validasi input dari klien
6. Gunakan versi pada API
7. Gunakan HTTPS untuk meningkatkan keamanan API



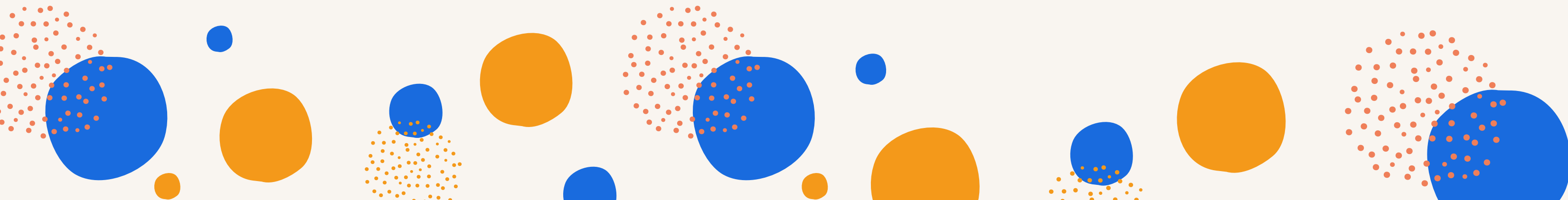


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Tahapan Registrasi Web API BPS



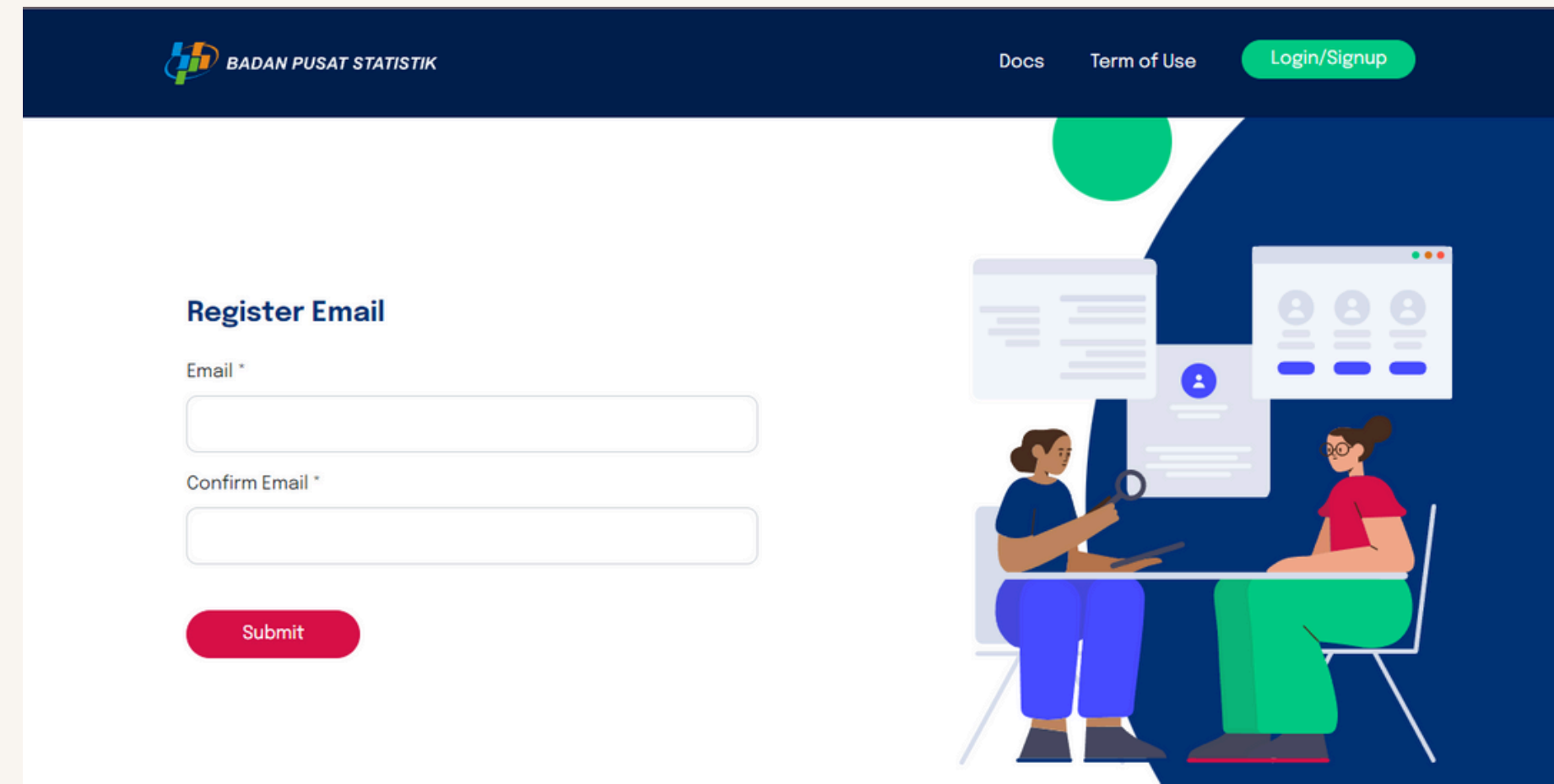
Tahapan Registrasi Web API BPS

Developer harus memiliki akun PST (Pelayanan Statistik Terpadu) terlebih dahulu sebelum mengakses Web API BPS.

Untuk membuat akun, developer harus mengakses link berikut

<https://webapi.bps.go.id/developer/register>

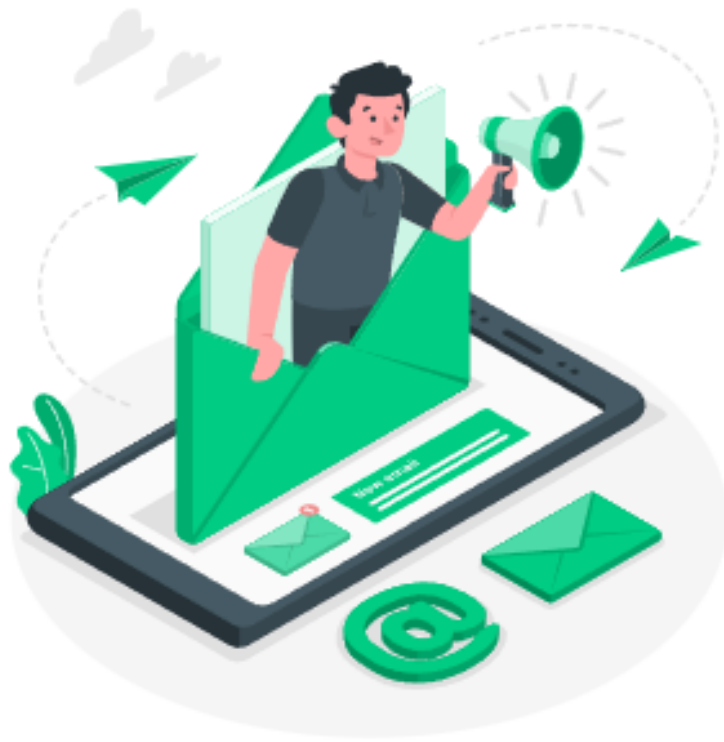
Developer harus memasukkan akun yang akan digunakan sebagai akun PST.



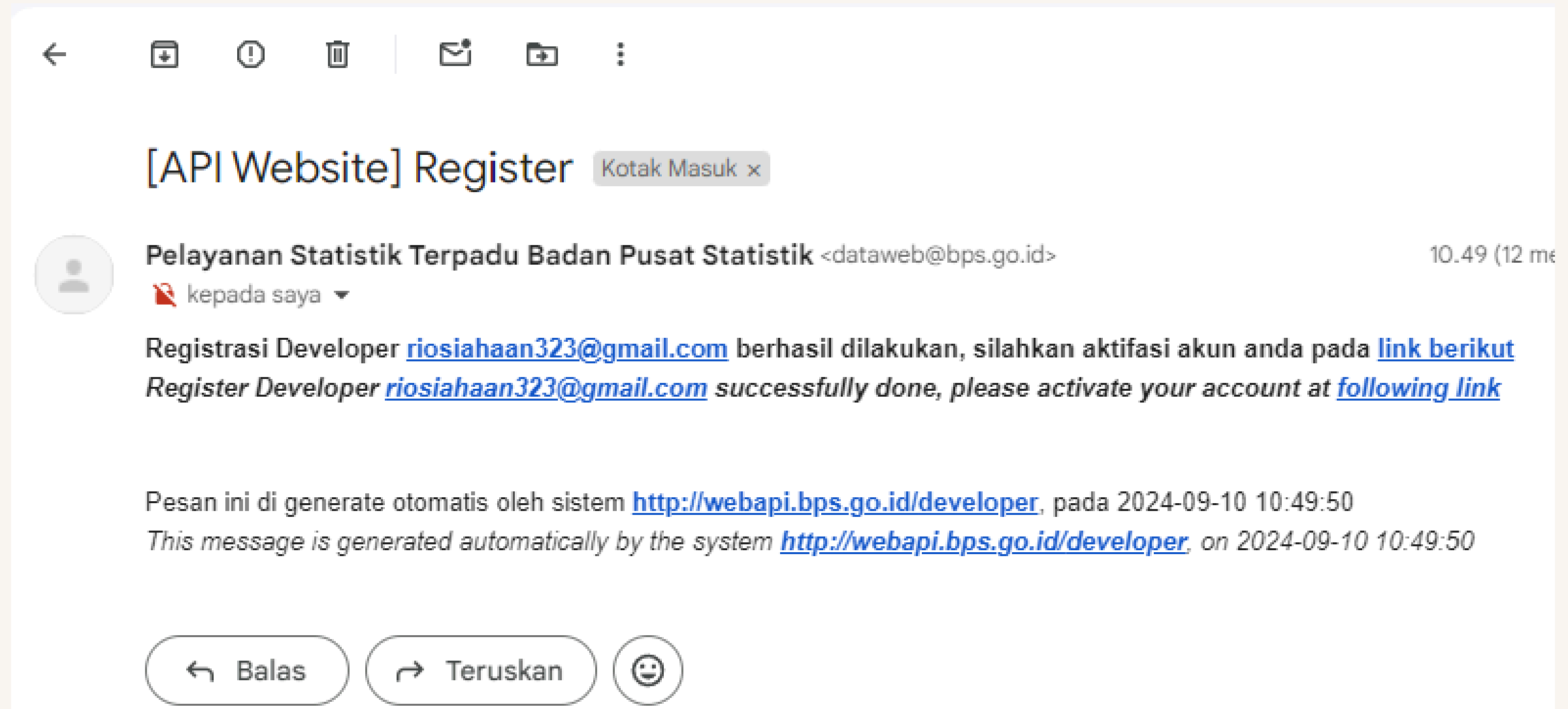
The screenshot shows the 'Register Email' form on the BPS Web API Developer portal. The page has a dark blue header with the BPS logo, 'BADAN PUSAT STATISTIK', and navigation links for 'Docs', 'Term of Use', and a 'Login/Signup' button. The main content area is white and features the 'Register Email' title. Below the title are two input fields: 'Email *' and 'Confirm Email *'. A red 'Submit' button is positioned at the bottom of the form. To the right of the form is a large illustration of two people sitting at a desk, working on laptops, with several floating windows displaying data and user profiles in the background.

Tahapan Registrasi Web API BPS

Developer menerima email untuk melakukan aktivasi akun.



Success. Please check your email
riosiahaan323@gmail.com





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Registration Form

Fields with * are required.

Email

riosiahaan323@gmail.com

Name of Company *

Password *

Purpose of Using API *

- Choose Purpose API -

Confirm Password *

Address of Office *

Name *

Country *

Andorra

Type of Profession *

- Choose Type of Profession -

Avatar

Choose File

No file chosen

Term of Use *

Choose File

No file chosen

Term of Use can be downloaded here (indonesian version)

Create

Tahapan Registrasi Web API BPS

Setelah klik link aktivasi, developer mendaftarkan akunnya di form registrasi dan mengunggah file **Term of Use** dari link berikut.

https://webapi.bps.go.id/developer/files/term_of_use_register.pdf



Profil

Name	yo
Email	riosiahaan323@gmail.com
Type Of Profession	Student
Name Of Company	STIS
Purpose Of Using Api	Personal
Address Of Office	Jl. Otto Iskandardinata No.64C 1, RT.1/RW.4, Bidara Cina, Kecamatan Jatinegara, Kota Jakarta Timur, Daerah Khusus Ibukota Jakarta 13330

Please login first to register your applications that will use
our API

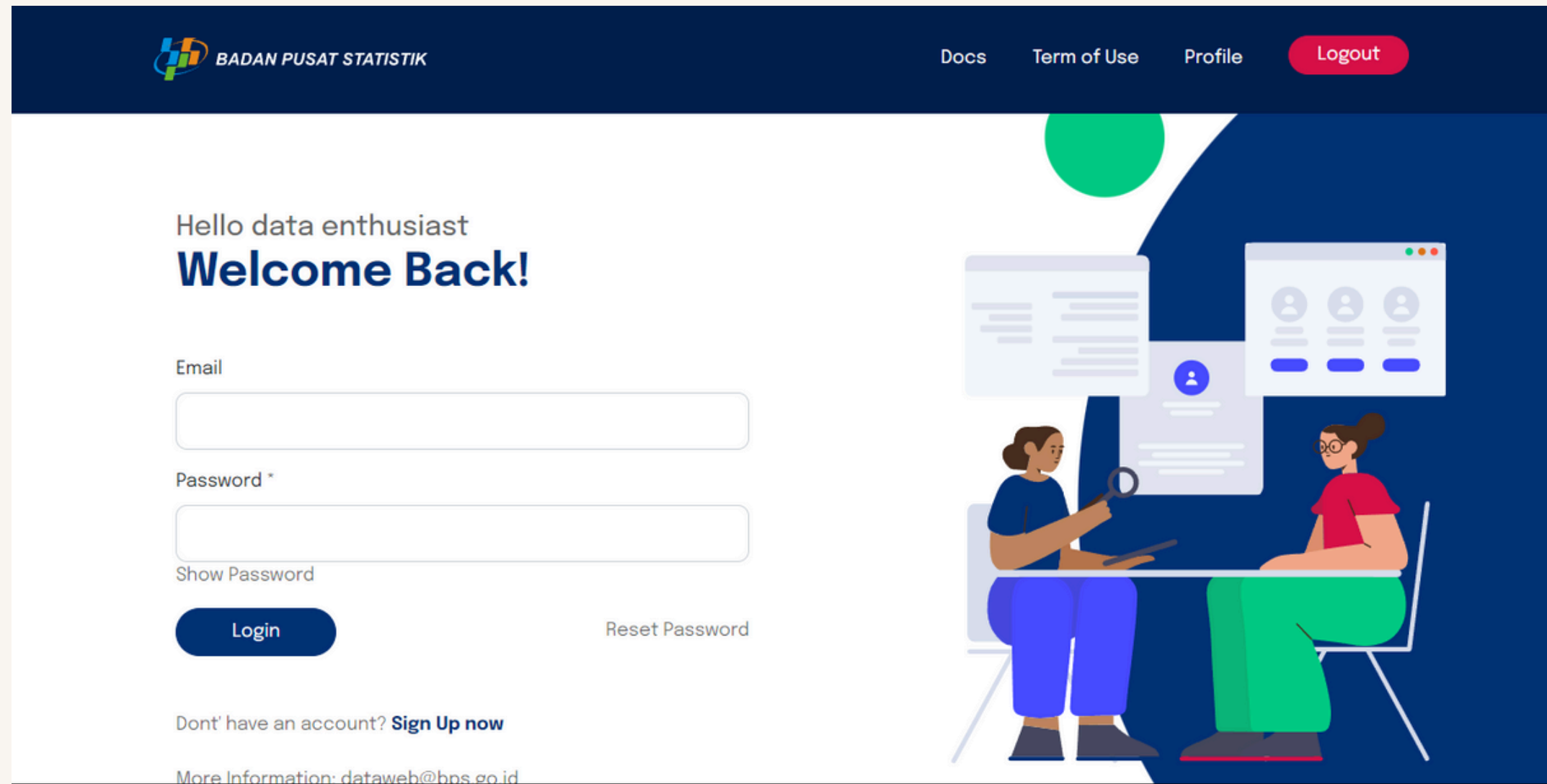
Tahapan Registrasi Web API BPS

Isian secara ringkas dapat dilihat di halaman profil
developer.


Tahapan Registrasi Web API BPS

Setelah melakukan registrasi, developer harus melakukan login di link berikut.

<https://webapi.bps.go.id/developer/login>



The screenshot shows the login interface for the BPS Web API Developer. The header is dark blue with the BPS logo and navigation links: Docs, Term of Use, Profile, and a red Logout button. The main content area is white and features a greeting 'Hello data enthusiast' followed by 'Welcome Back!'. Below this are input fields for Email and Password, with a 'Show Password' link. A blue Login button and a Reset Password link are positioned below the password field. At the bottom, there is a link for users without an account to 'Sign Up now' and a footer with 'More Information: dataweb@bps.go.id'. On the right side, there is a colorful illustration of two people sitting at a desk with multiple computer monitors displaying data and charts.

 **BADAN PUSAT STATISTIK**

Docs Term of Use Profile **Logout**

Hello data enthusiast
Welcome Back!

Email

Password *

Show Password

Login Reset Password

Don't have an account? **Sign Up now**

More Information: dataweb@bps.go.id

Tahapan Registrasi Web API BPS

Setelah login, developer dapat memperoleh API Key dengan mengisi formulir dari link berikut.

<https://webapi.bps.go.id/developer/application/create/>

Create Application

Fields with * are required.

Title of Application *

URL *

If don't have a URL, fill in <http://localhost/>

Type of Application *

- Choose Type of Application - ▼

Information *

Generate Key




APP ID =

[List of Applications](#)

Tahapan Registrasi Web API BPS

Setelah klik *Generate Key*, developer dapat memperoleh API Key yang akan digunakan untuk melakukan *request* pada API.

Accounts

<div>Profile Applications</div>							
No.	Title of Application	URL	Type of Application	Information	App ID	Status.	
1	tes	http://localhost/	Web Application	tes	25fd16fba43c5fdfcced1b9e864765bd	Aktif	  

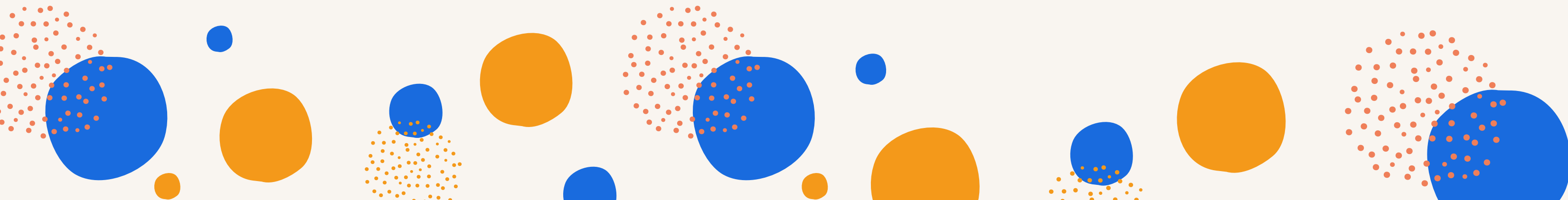


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Dokumentasi Web API BPS



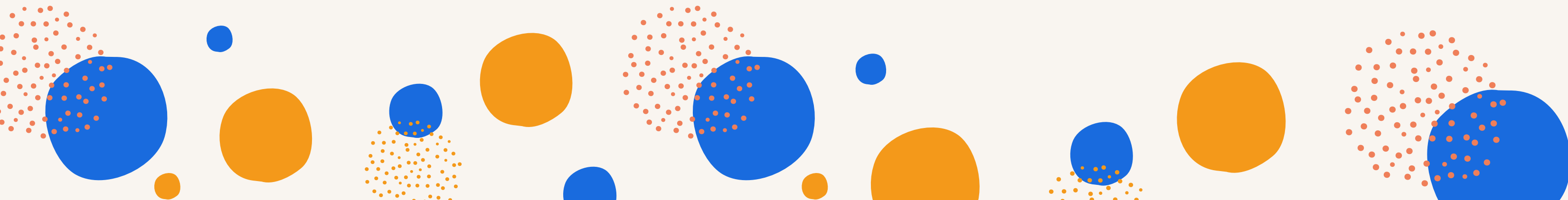


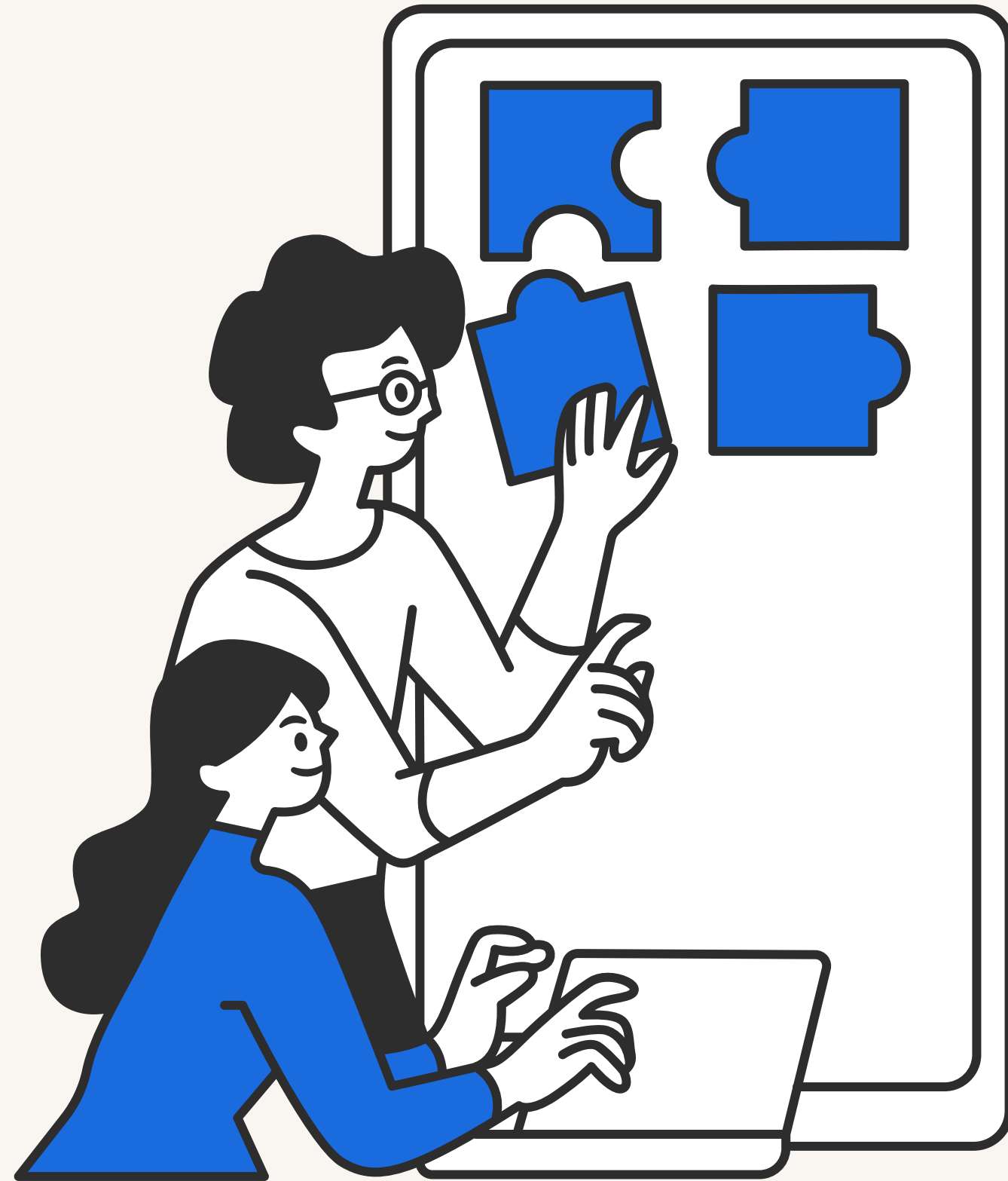
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Implementasi pada Microsoft Excel





Implementasi Tabel Statis

Membaca data JSON menjadi format yang lebih sederhana.

Mengubah file JSON menjadi excel.



```
json_excel.py > ...
16 return datacontent.get(data_key, None)
17
18 # Iterate over all files in the JSON folder
19 for filename in os.listdir(json_folder):
20     if filename.endswith('.json'):
21         file_path = os.path.join(json_folder, filename)
22
23         # Load JSON data
24         with open(file_path, 'r') as file:
25             data = json.load(file)
26
27         # Extract data
28         var_info = data["var"][0]["val"]
29         vervar = data["vervar"]
30         tahun = data["tahun"]
31         turvar = data["turvar"][0]["val"]
32         datacontent = data["datacontent"]
33
34         # Prepare data for DataFrame
35         df_dict = {
36             "Kabupaten/Kota": [item["label"] for item in vervar],
37         }
38
39         for tahun_item in tahun:
40             tahun_val = tahun_item["val"]
41             column_name = tahun_item["label"]
42             df_dict[column_name] = [
43                 get_datacontent_value(datacontent, item["val"], var_info, turvar, tahun_val)
44                 for item in vervar
45             ]
46
47         # Create DataFrame
48         df = pd.DataFrame(df_dict)
49
50         # Define output file path
51         excel_filename = os.path.join(excel_folder, os.path.splitext(filename)[0] + '.xlsx')
52
53         # Write DataFrame to an Excel file
54         df.to_excel(excel_filename, index=False)
55
56 print("Conversion completed. Excel files have been saved in the EXCEL folder.")
```

Implementasi Tabel Statis

Berikut alur dari implementasi:

1. Menyimpan file JSON ke local menggunakan Postman ke dalam folder JSON
2. Menjalankan kodingan Python
3. File Excel akan tersimpan dengan nama file sesuai nama tabel untuk JSON.



```
JSON > {} Angka Harapan Hidup.json > {} datacontent > # 12117501150
1 {"status":"OK","data-availability":"available","var":[{"val":71,"note":"","turvar":[{"val":0,"label":"Tidak Ada"}],"labelverv","label":"Tapanuli Selatan"}, {"val":1204,"label":"Tapanuli Tengah"}, {"val":1208,"label":"Asahan"}, {"val":1209,"label":"Simalungun"}, {"label":"Langkat"}, {"val":1214,"label":"Nias Selatan"}, {"val":1215,"label":"Serdang Bedagai"}, {"val":1219,"label":"Batu Bara"}, {"val":1220,"label":"Sulawesi Selatan"}, {"val":1223,"label":"Labuanbatu Utara"}, {"val":1224,"label":"Tanjungbalai"}, {"val":1273,"label":"Pematangsiantar"}, {"label":"Padangsidempuan"}, {"val":1278,"label":"Gunungsitoli"}, {"label":"2012"}, {"val":113,"label":"2013"}, {"val":114,"label":"2014"}, {"label":"2018"}, {"val":119,"label":"2019"}], 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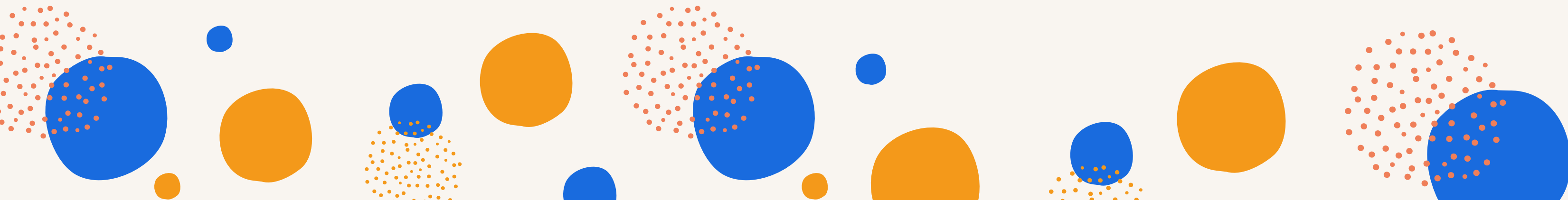


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PROVINSI SUMATERA UTARA**

POLITEKNIK STATISTIKA STIS
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Tanya Jawab dan Penutup





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Thank you!

**“Remember, you’re awesome just the way you are, but self-awareness might
make you even awesomer!”**