Sumber daya di Server MCP

PENGANTAR MODEL CONTEXT PROTOCOL (MCP)



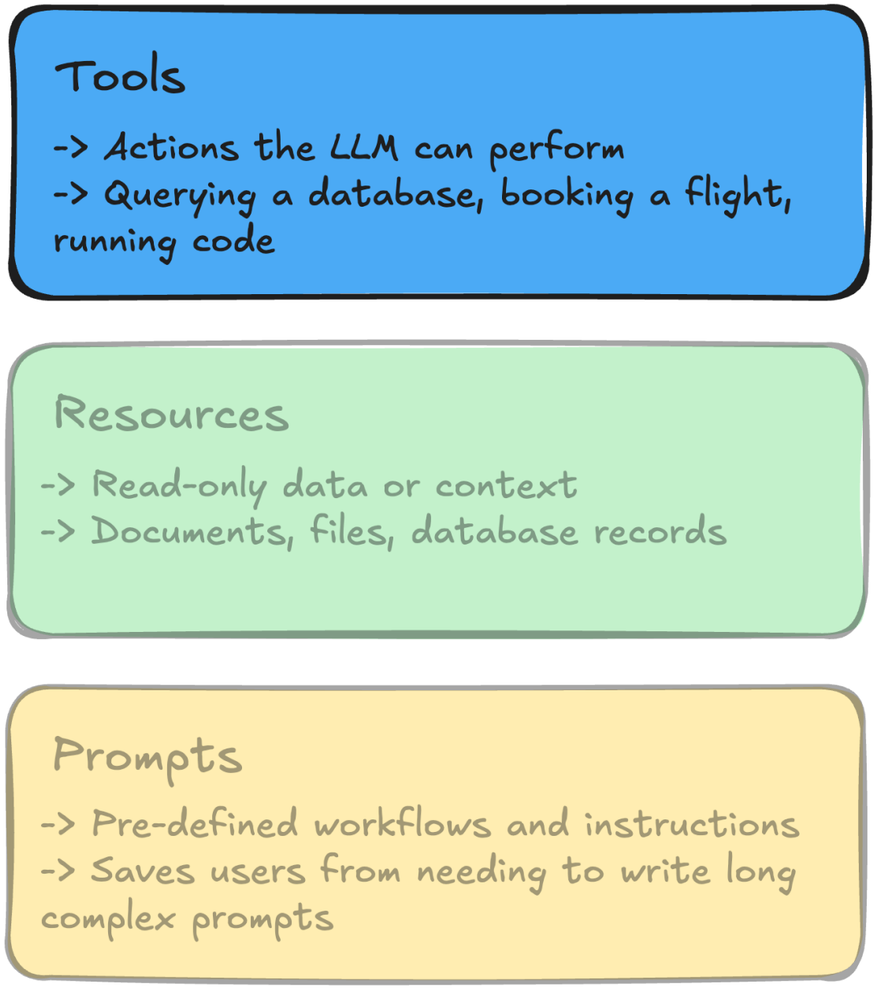
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datacamp

Apa itu Resource MCP?

Bab 2

- Resource + Prompt



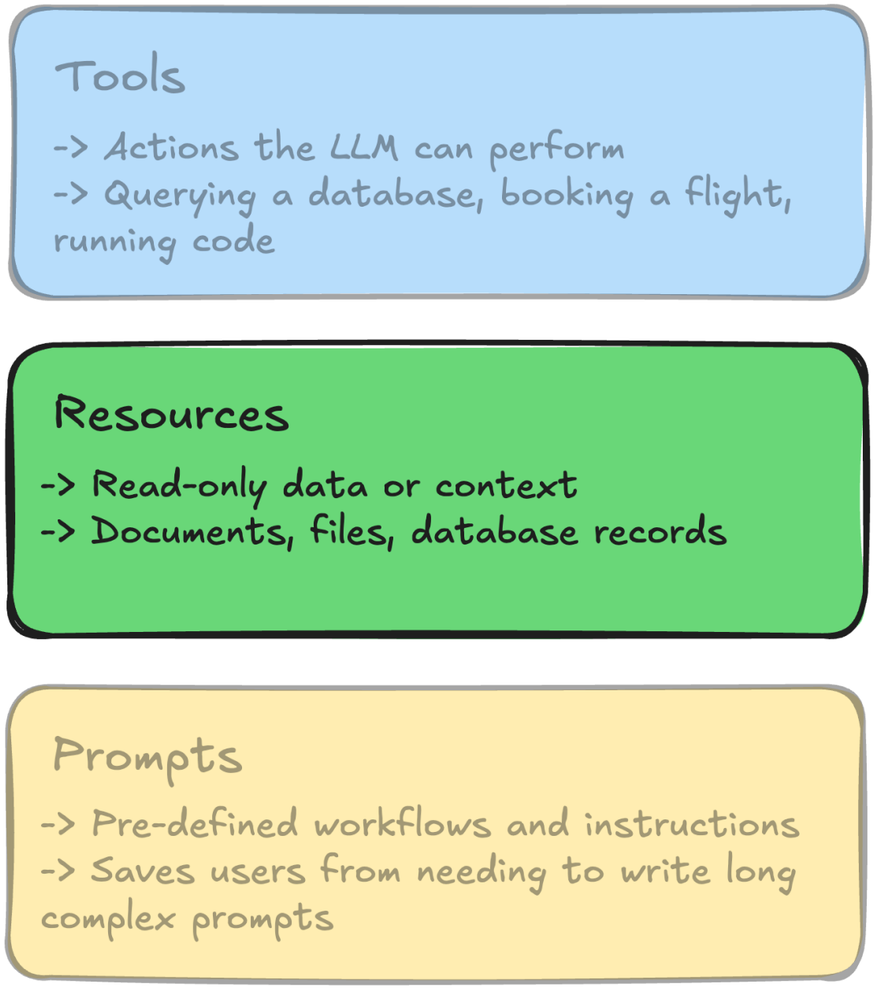
Apa itu Resource MCP?

Bab 2

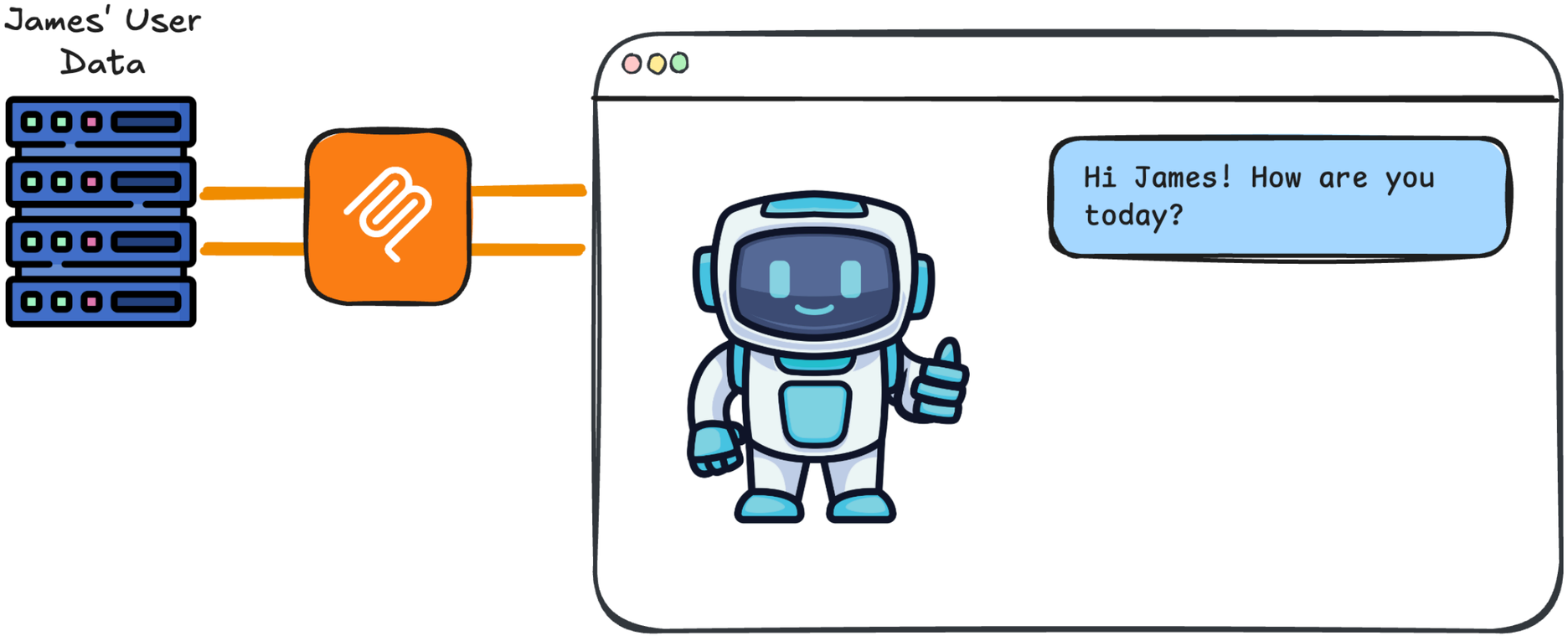
- Resource dan prompt
- Integrasi dengan API dan database

Resource: data hanya-baca atau objek data yang diambil klien MCP

- Tidak harus dipanggil LLM
- Dipicu aplikasi → mis. preferensi pengguna
- Dipicu pengguna → mis. unggah file



Resource MCP di Aplikasi AI



Mendefinisikan Resource Server MCP

```python
from mcp.server.fastmcp import FastMCP

mcp = FastMCP("Timezone Converter")

@mcp.resource("file://locations.txt")
def get_locations():
    try:
        with open('locations.txt', 'r') as f:
            content = f.read()
        return content
    except FileNotFoundError:
        return "locations.txt file not found"
```

- URI: uniform resource identifier
  - Dapat menunjuk ke file lokal, API, server jarak jauh, dll.
  - Dapat menyisipkan parameter dinamis seperti User ID
- `locations.txt` (server-side) → daftar lokasi zona waktu

Mendefinisikan Resource Server MCP

```python
@mcp.resource("file://locations.txt")
def get_locations() -> str:
    """
    Get the list of cities for timezone conversion.

    Returns:
        Contents of the locations.txt file with city names
    """
    try:
        with open('locations.txt', 'r') as f:
            content = f.read()
        return content
    except FileNotFoundError:
        return "locations.txt file not found"
```

Menyimpan Server: timezone_server.py

```python
from mcp.server.fastmcp import FastMCP

mcp = FastMCP("Timezone Converter")

# Tools from before...

@mcp.resource("file://locations.txt")
def get_locations() -> str:
    # ...

if __name__ == "__main__":
    mcp.run(transport="stdio")
```

Klien: Melisting Resource

```
async def list_resources():
    """List all available resources from the MCP server."""
    params = StdioServerParameters(command=sys.executable, args=["timezone_server.py"])

    async with stdio_client(params) as (reader, writer):
        async with ClientSession(reader, writer) as session:
            await session.initialize()
            response = await session.list_resources()

            print("Available resources:")
            for resource in response.resources:
                print(f" - {resource.uri}")
                print(f"   Name: {resource.name}")
                print(f"   Description: {resource.description}")

            return response.resources
```

Klien: Melisting Resource

```
print(asyncio.run(list_resources()))
```

```
Available resources:
 - file://locations.txt/
   Name: get_locations
   Description:
    Get the list of cities for timezone conversion.

    Returns:
        Contents of the locations.txt file with city names

[Resource(name='get_locations', title=None, uri=AnyUrl('file://locations.txt/'),
          description='\n    Get the list of cities for timezone conversion.\n\n...',
          mimeType='text/plain', size=None, icons=None, annotations=None, meta=None)]
```

Klien: Membaca Resource

```python
async def read_resource(resource_uri: str):
    """Read a specific resource by URI."""
    params = StdioServerParameters(command=sys.executable, args=["timezone_server.py"])

    async with stdio_client(params) as (reader, writer):
        async with ClientSession(reader, writer) as session:
            await session.initialize()

            print(f"Reading resource: {resource_uri}")
            resource_content = await session.read_resource(resource_uri)

            for content in resource_content.contents:
                print(f"\nContent ({content.mimeType}):")
                print(content.text)

            return resource_content
```

Klien: Membaca Resource

```
print(asyncio.run(read_resource('file://locations.txt/')))
```

```
Reading resource: file://locations.txt

Content (text/plain):
Africa/Abidjan
Africa/Accra
Africa/Addis_Ababa
Africa/Algiers
...

ReadResourceResult(meta=None, contents=[TextResourceContents(uri=AnyUrl('file://locations.txt/'),
                   mimeType='text/plain', meta=None, text='Africa/Abidjan\nAfrica/Accra...')])
```

Ayo berlatih!

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