

Lab 10

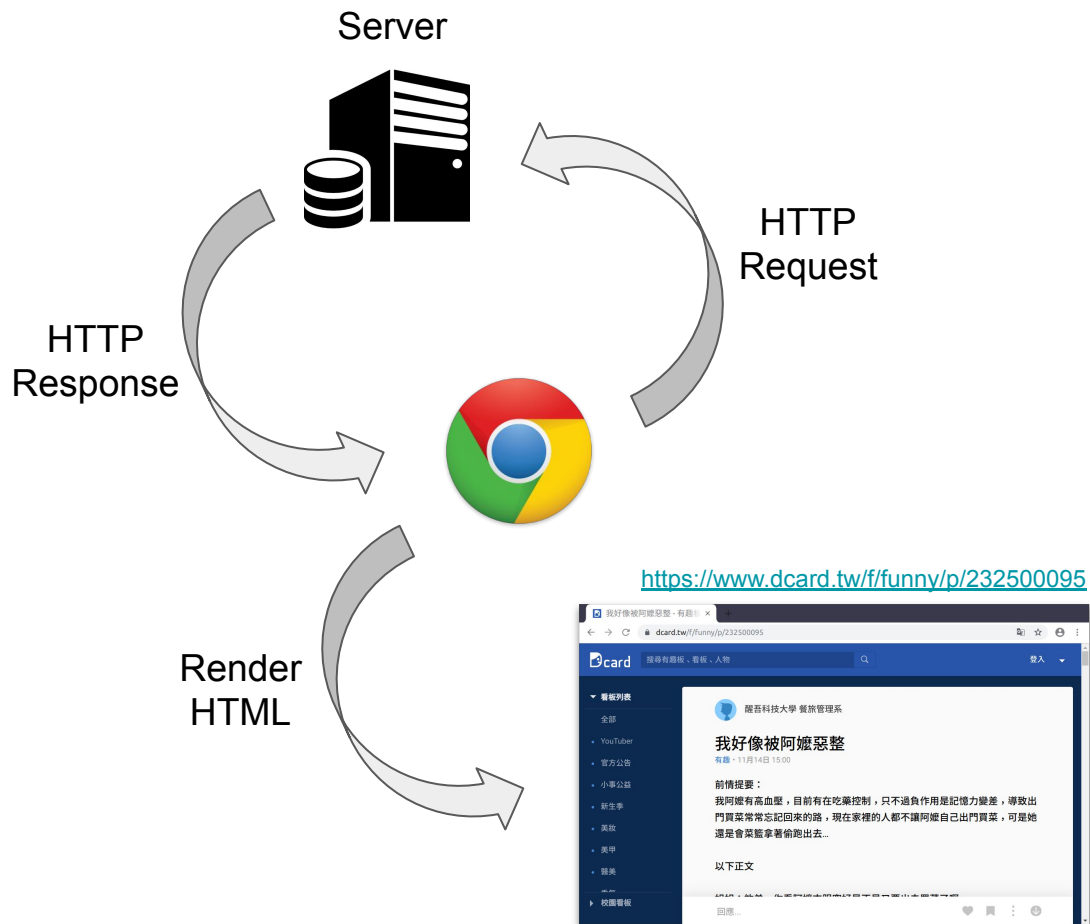
擷取網路資料 (I)

Web API, JSON, http

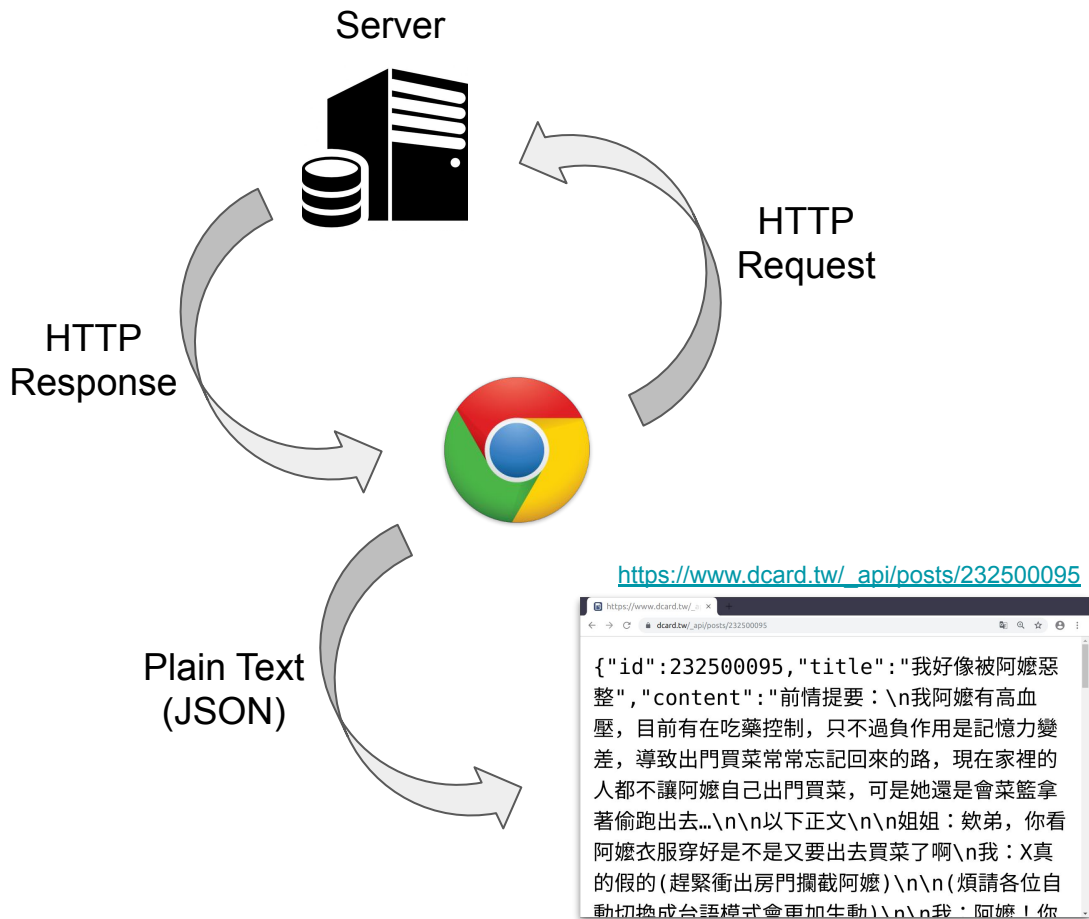
HTTP

(Hypertext Transfer Protocol)

Hypertext Transfer Protocol (HTTP)

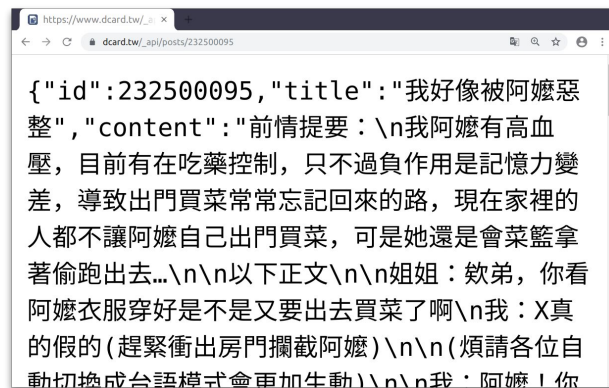


Hypertext Transfer Protocol (HTTP)



HTML vs. JSON

- 皆是純文字
- HTML: (透過瀏覽器處理後) 給人看的
 - 許多內容是為了**視覺呈現**而定義的
 - 漂亮、互動性強
 - 結構複雜、耗傳輸資源 (檔案大)
- JSON: 給**程式**用的
 - 提供**乾淨結構化**的資訊供程式擷取



玩玩看 : Foreign exchange rates API

<https://ratesapi.io/>

`https://api.ratesapi.io/api/latest`

`https://api.ratesapi.io/api/2010-01-12`

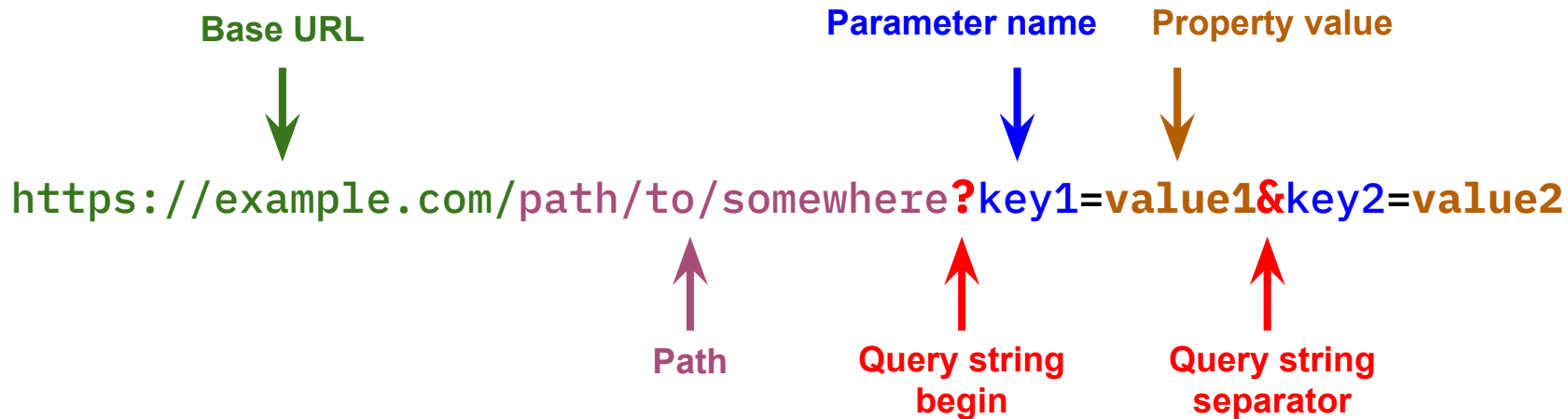
`https://api.ratesapi.io/api/latest?base=USD`

`https://api.ratesapi.io/api/latest?base=USD&symbols=CAD,JPY`

Your Turn

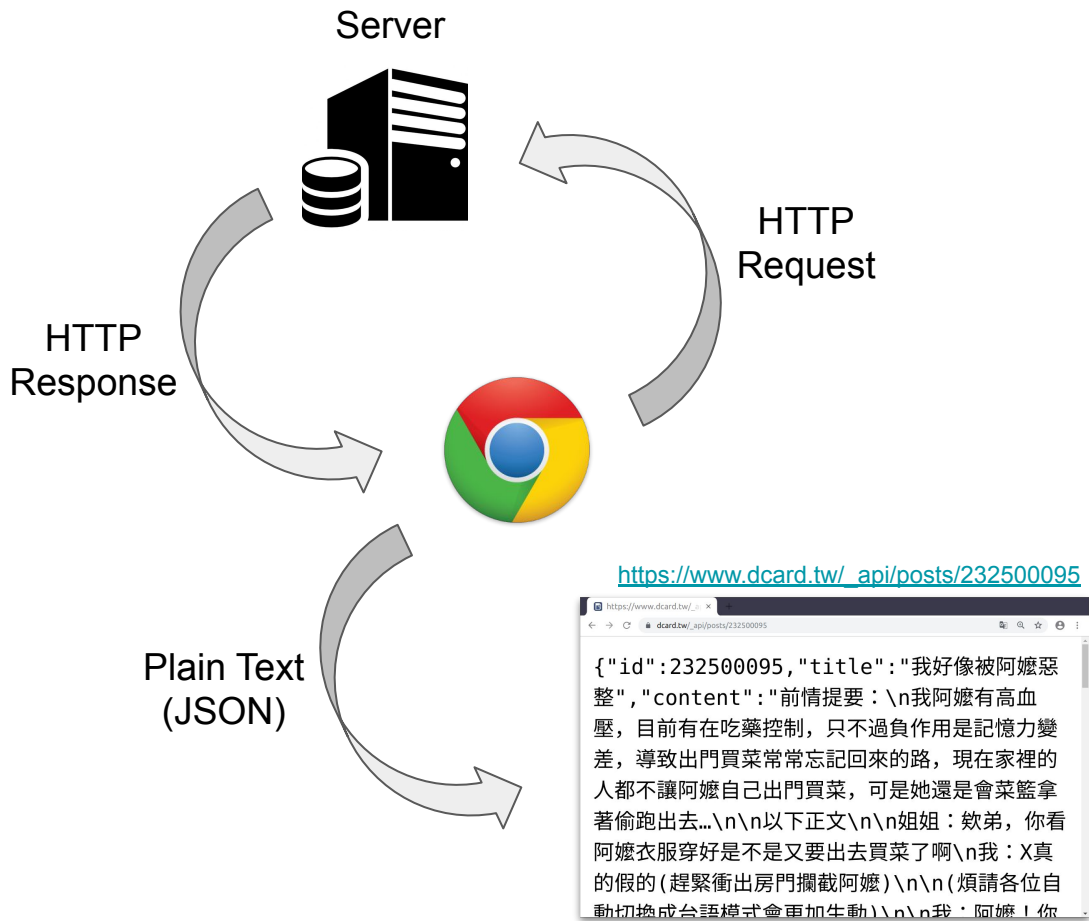
請找出 **2017-01-03** 美金 (**USD**) 兌日圓 (**JPY**) 的匯率
(亦即, 1 USD = ? JPY)

URL 結構

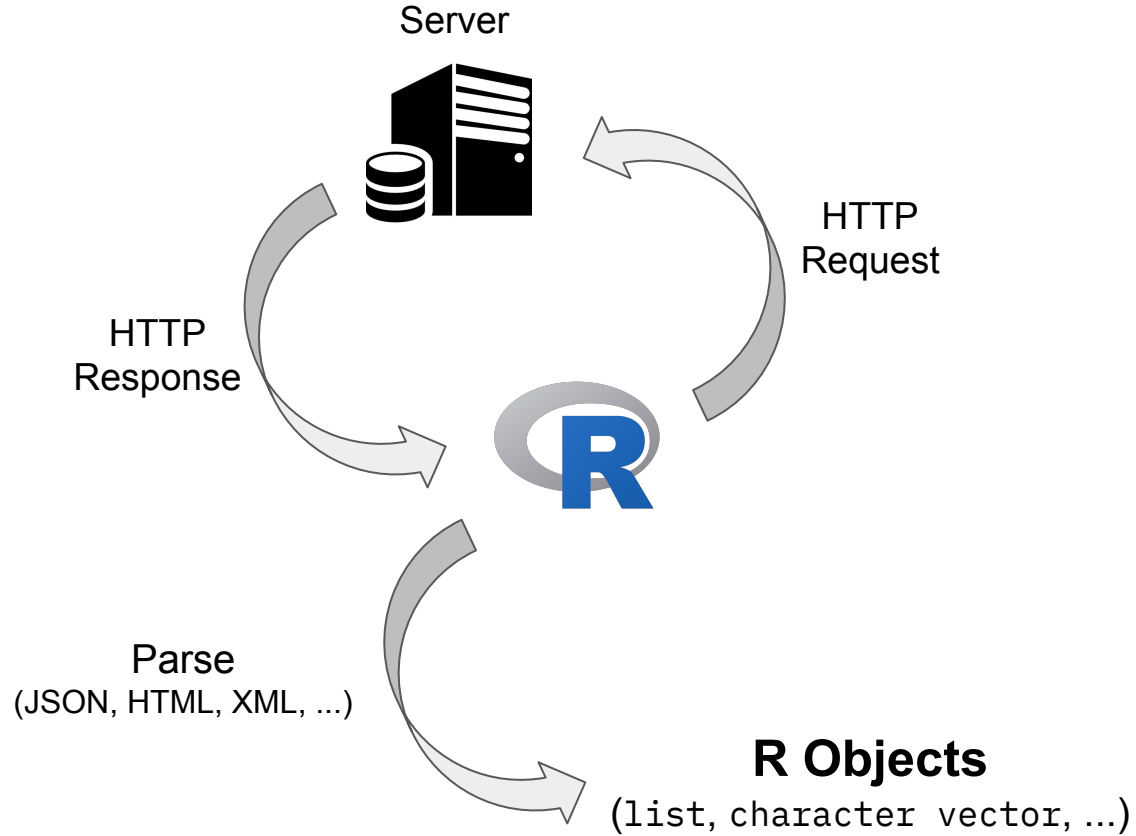


`https://api.ratesapi.io/api/latest?base=USD&symbols=CAD,JPY`

透過瀏覽器跟伺服器互動



透過 R 跟伺服器互動



httr

```
library(httr)
req <- GET(url = "https://example.com")

req[["status_code"]]
content(req)
```

JSON

JavaScript Object Notation (JSON)

- 花括號內
 - (無序的) key-value pairs
- value 可有 4 種資料類型 (type)
 - 字串、數值、布林值、null
- 可有階層結構
- [] 表徵具有次序的 values

```
{  
  "name": "美髮",  
  "subscriptionCount": 1838,  
  "Subscribed": false,  
  "postThumbnail": {  
    "size": null  
  },  
  "topics": ["剪髮", "染髮"]  
}
```

```
jsonlite::fromJSON(<json_str>, simplifyVector = FALSE)
```

```
list(  
  name = "美髮",  
  subscriptionCount = 1838,  
  subscribed = FALSE,  
  postThumbnail = list(  
    size = NULL  
  ),  
  topics = list("剪髮", "染髮")  
)
```

```
{  
  "name": "美髮",  
  "subscriptionCount": 1838,  
  "Subscribed": false,  
  "postThumbnail": {  
    "size": null  
  },  
  "topics": ["剪髮", "染髮"]  
}
```