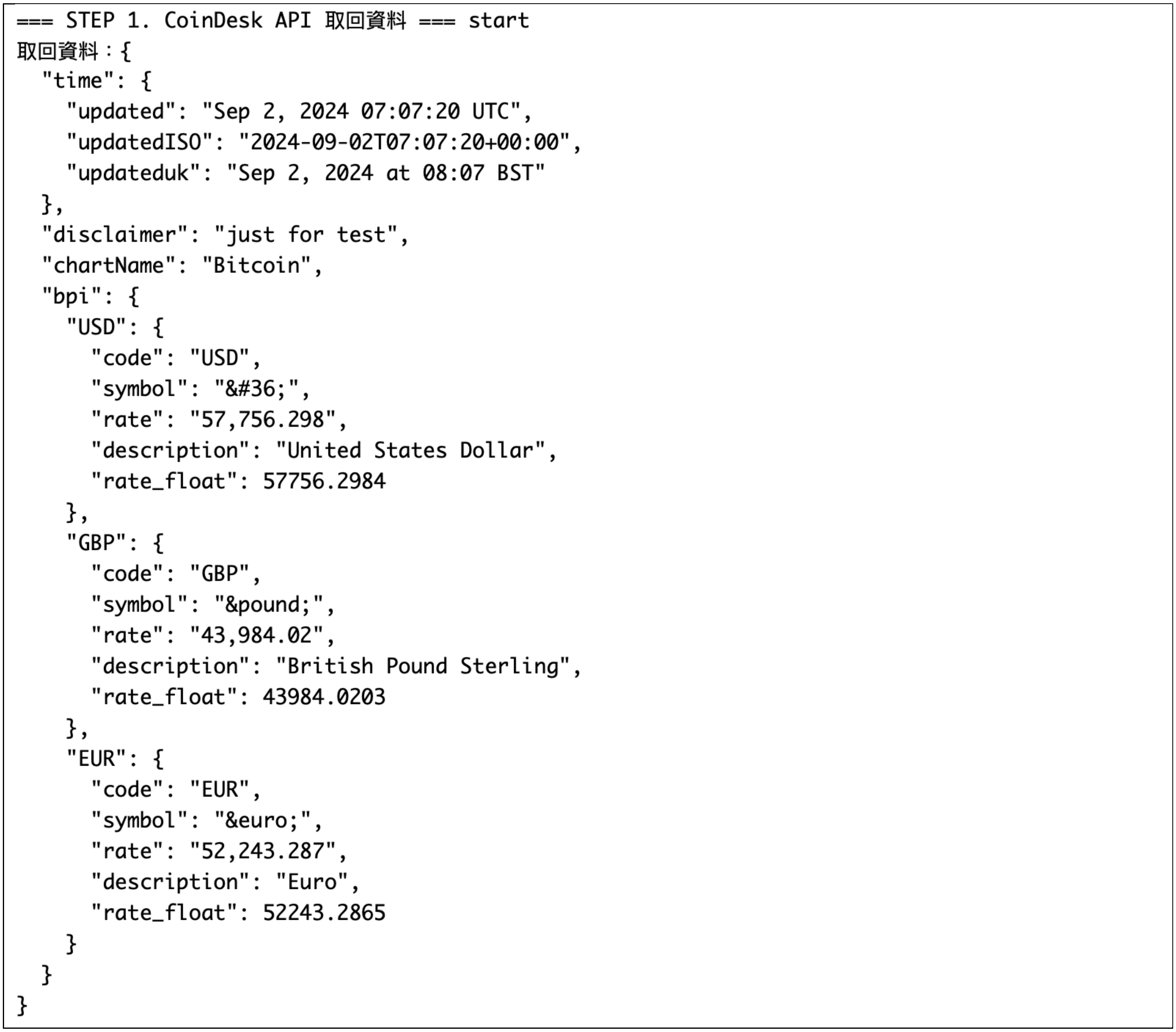
Junit 測報

一、測試案例說明

1. 主要針對呼叫 CoinDesk API，將取回的資料寫入 DB。
2. 為方便展示測試過程，在測試過程中會印出「測試流程」、「測試階段說明」、「測試項目」等資訊
3. 測試重點：
   - 3.1. 成功呼叫 CoinDesk 外部 API，取回完整內容並寫入物件
   - 3.2. Controller 層整合測試將 CoinDesk API 取回的內容更新至 DB 並成功導出下行
   - 3.3. Service 層
     - 3.3.1. 建立 CoinDesk API 測試資料，更新至 DB，測試資料型別轉換正確
     - 3.3.2. 查詢 DB，並將剛寫入的內容導出下行

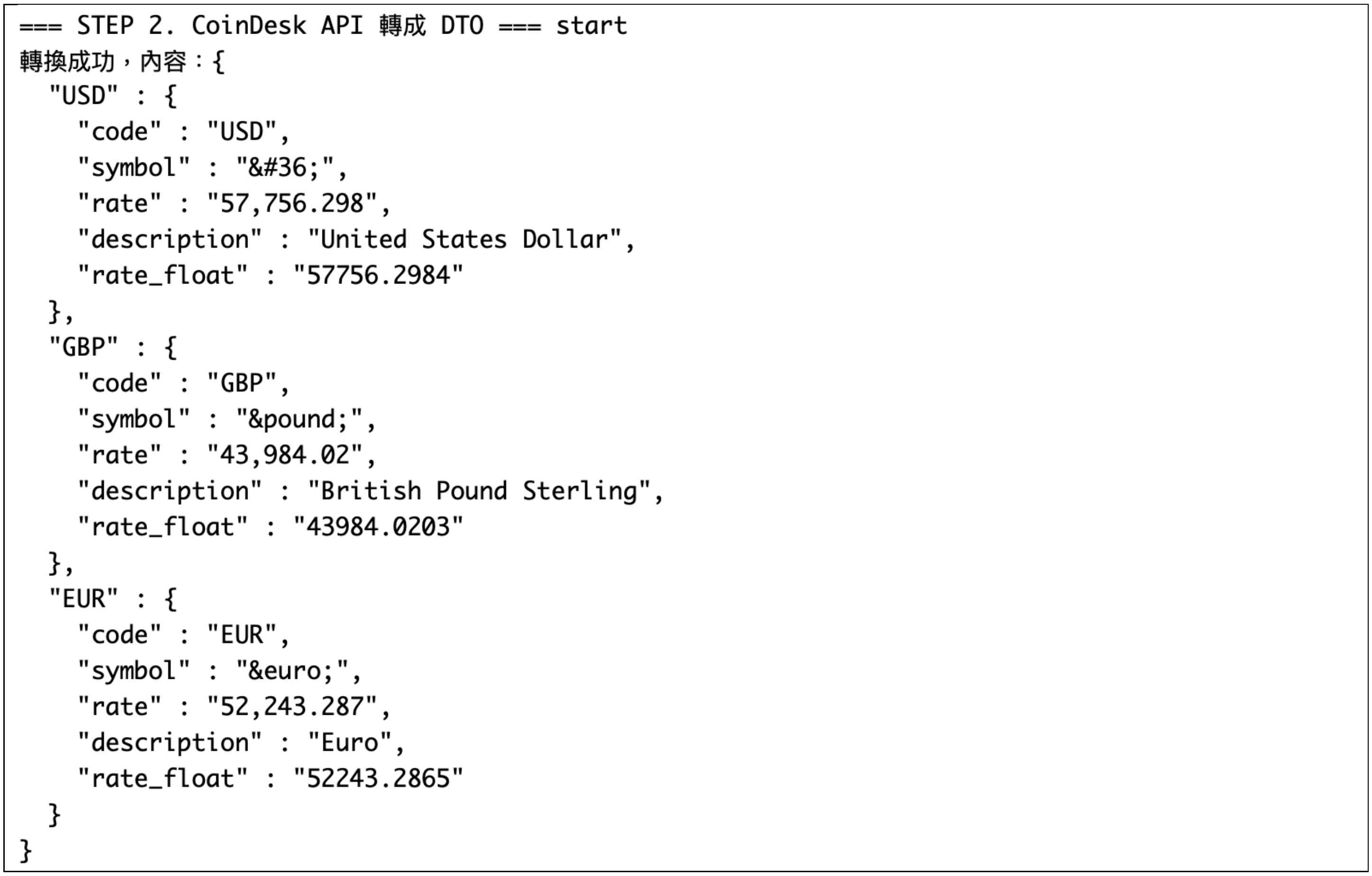
二、COINDESK API 取回資料並轉成 DTO 流程

Step 1.



```
=== STEP 1. CoinDesk API 取回資料 === start
取回資料：{
  "time": {
    "updated": "Sep 2, 2024 07:07:20 UTC",
    "updatedISO": "2024-09-02T07:07:20+00:00",
    "updateduk": "Sep 2, 2024 at 08:07 BST"
  },
  "disclaimer": "just for test",
  "chartName": "Bitcoin",
  "bpi": {
    "USD": {
      "code": "USD",
      "symbol": "&#36;",
      "rate": "57,756.298",
      "description": "United States Dollar",
      "rate_float": 57756.2984
    },
    "GBP": {
      "code": "GBP",
      "symbol": "&pound;",
      "rate": "43,984.02",
      "description": "British Pound Sterling",
      "rate_float": 43984.0203
    },
    "EUR": {
      "code": "EUR",
      "symbol": "&euro;",
      "rate": "52,243.287",
      "description": "Euro",
      "rate_float": 52243.2865
    }
  }
}
```

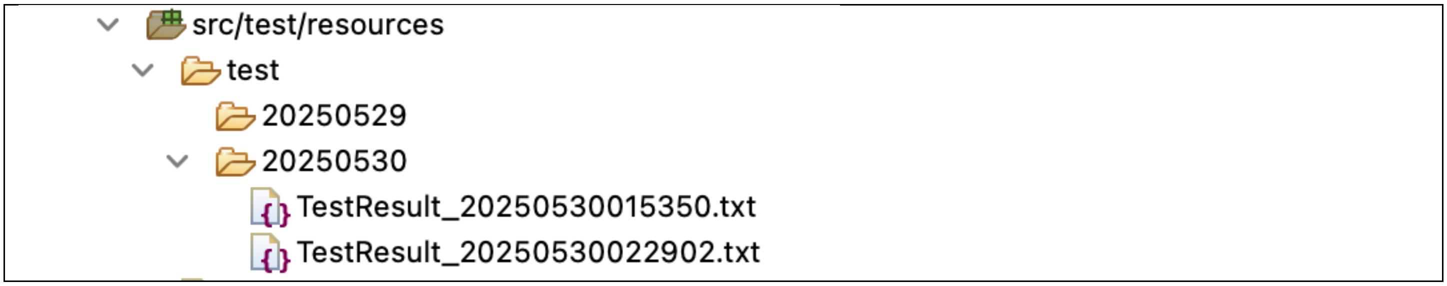
Step 2.



```
=== STEP 2. CoinDesk API 轉成 DTO === start
轉換成功，內容：{
  "USD" : {
    "code" : "USD",
    "symbol" : "&#36;",
    "rate" : "57,756.298",
    "description" : "United States Dollar",
    "rate_float" : "57756.2984"
  },
  "GBP" : {
    "code" : "GBP",
    "symbol" : "&pound;",
    "rate" : "43,984.02",
    "description" : "British Pound Sterling",
    "rate_float" : "43984.0203"
  },
  "EUR" : {
    "code" : "EUR",
    "symbol" : "&euro;",
    "rate" : "52,243.287",
    "description" : "Euro",
    "rate_float" : "52243.2865"
  }
}
```

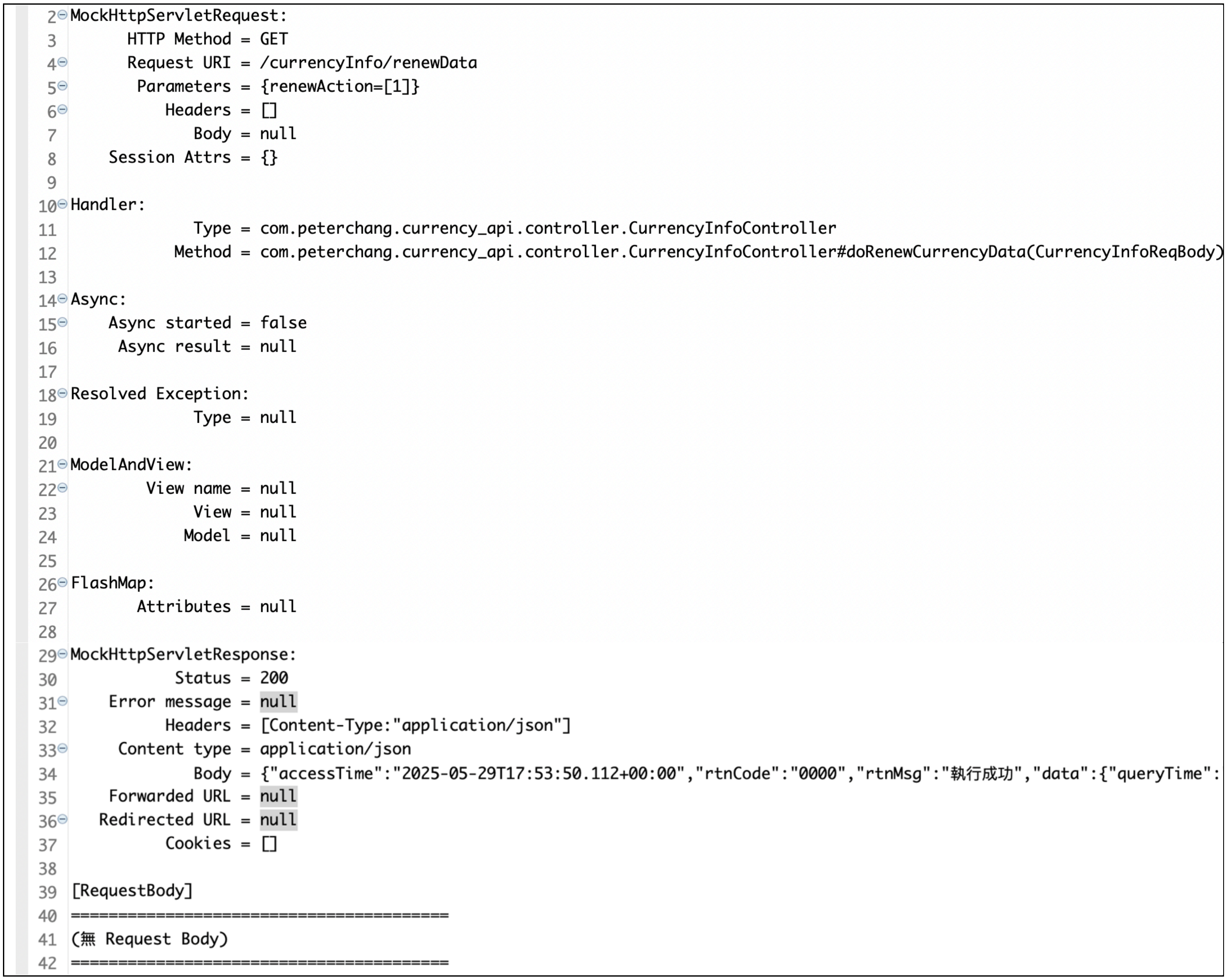
三、CONTROLLER 層，呼叫 COINDESK API 並更新 DB 整合測試流程

設計為將測試結果導出 txt 檔，存入 /resources/test/{系統日期}/

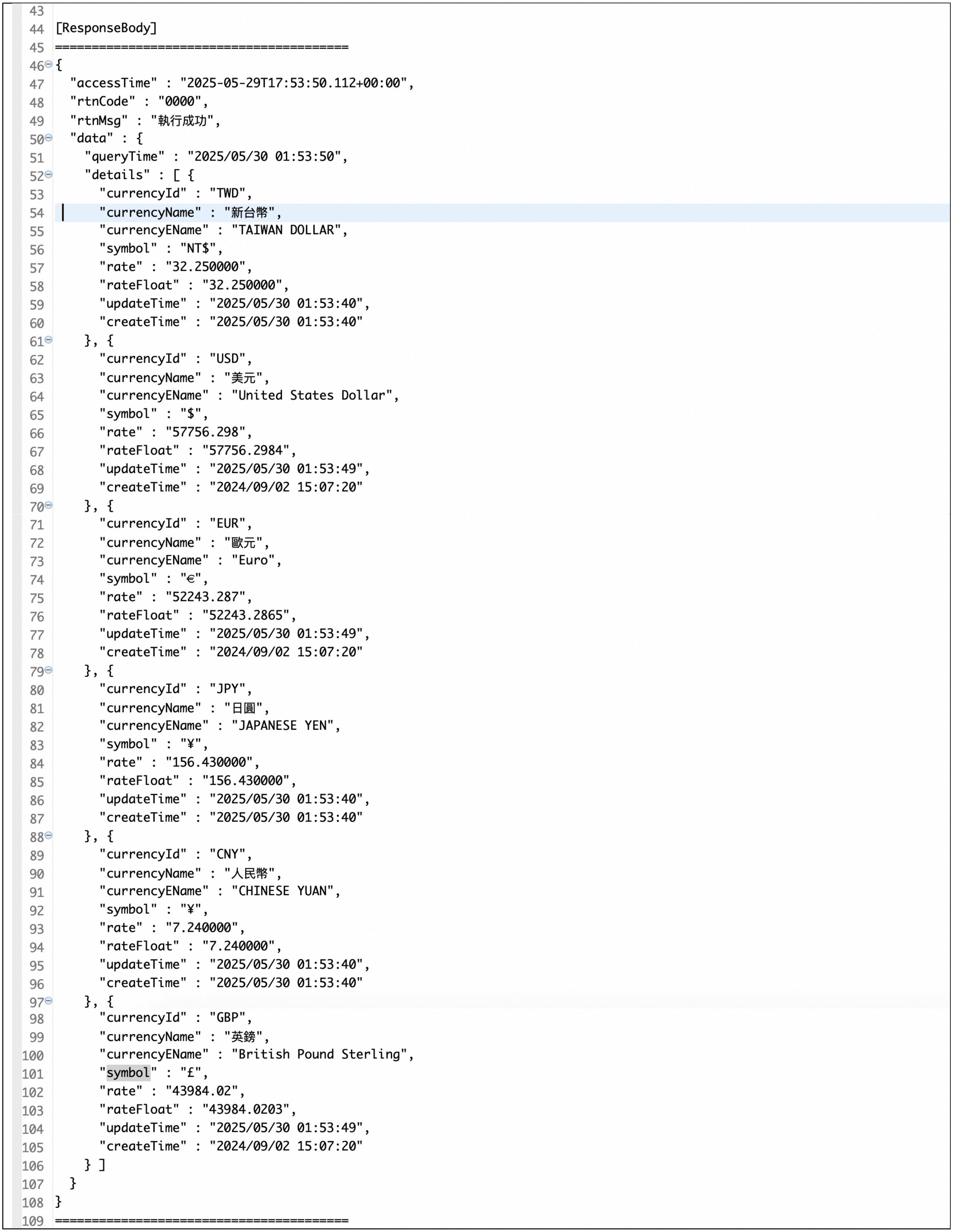


```
src/test/resources
  test
    20250529
    20250530
      TestResult_20250530015350.txt
      TestResult_20250530022902.txt
```

測試內容：



```
MockHttpServletRequest:
      HTTP Method = GET
      Request URI = /currencyInfo/renewData
       Parameters = {renewAction=[1]}
          Headers = []
             Body = null
    Session Attrs = {}

Handler:
             Type = com.peterchang.currency_api.controller.CurrencyInfoController
           Method = com.peterchang.currency_api.controller.CurrencyInfoController#doRenewCurrencyData(CurrencyInfoReqBody)

Async:
    Async started = false
     Async result = null

Resolved Exception:
             Type = null

ModelAndView:
        View name = null
             View = null
            Model = null

FlashMap:
       Attributes = null

MockHttpServletResponse:
           Status = 200
    Error message = null
          Headers = [Content-Type:"application/json"]
     Content type = application/json
             Body = {"accessTime":"2025-05-29T17:53:50.112+00:00","rtnCode":"0000","rtnMsg":"執行成功","data":{"queryTime":
    Forwarded URL = null
   Redirected URL = null
          Cookies = []

[RequestBody]
========================================
(無 Request Body)
========================================
```



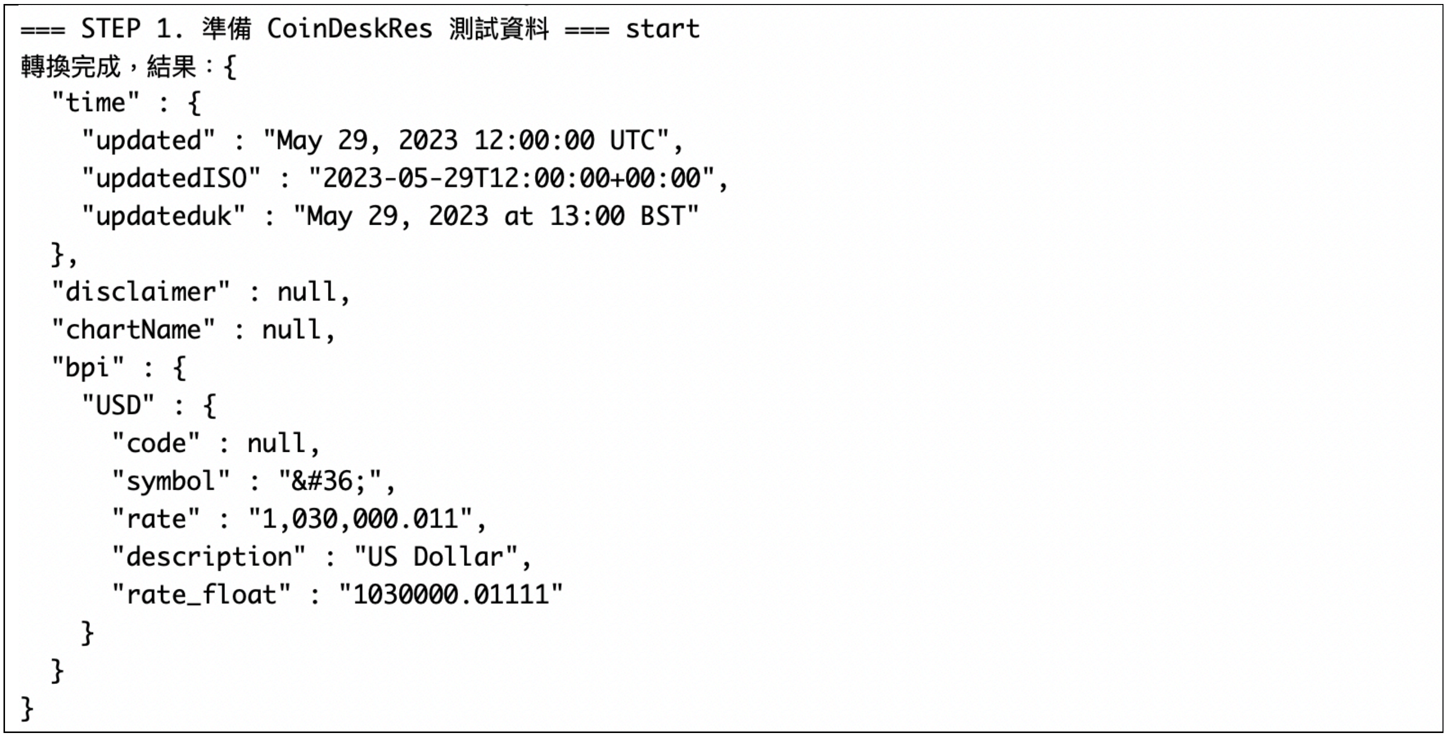
```

[ResponseBody]
========================================
```

```
{
  "accessTime" : "2025-05-29T17:53:50.112+00:00",
  "rtnCode" : "0000",
  "rtnMsg" : "執行成功",
  "data" : {
    "queryTime" : "2025/05/30 01:53:50",
    "details" : [ {
      "currencyId" : "TWD",
      "currencyName" : "新台幣",
      "currencyEName" : "TAIWAN DOLLAR",
      "symbol" : "NT$",
      "rate" : "32.250000",
      "rateFloat" : "32.250000",
      "updateTime" : "2025/05/30 01:53:40",
      "createTime" : "2025/05/30 01:53:40"
    }, {
      "currencyId" : "USD",
      "currencyName" : "美元",
      "currencyEName" : "United States Dollar",
      "symbol" : "$",
      "rate" : "57756.298",
      "rateFloat" : "57756.2984",
      "updateTime" : "2025/05/30 01:53:49",
      "createTime" : "2024/09/02 15:07:20"
    }, {
      "currencyId" : "EUR",
      "currencyName" : "歐元",
      "currencyEName" : "Euro",
      "symbol" : "€",
      "rate" : "52243.287",
      "rateFloat" : "52243.2865",
      "updateTime" : "2025/05/30 01:53:49",
      "createTime" : "2024/09/02 15:07:20"
    }, {
      "currencyId" : "JPY",
      "currencyName" : "日圓",
      "currencyEName" : "JAPANESE YEN",
      "symbol" : "¥",
      "rate" : "156.430000",
      "rateFloat" : "156.430000",
      "updateTime" : "2025/05/30 01:53:40",
      "createTime" : "2025/05/30 01:53:40"
    }, {
      "currencyId" : "CNY",
      "currencyName" : "人民幣",
      "currencyEName" : "CHINESE YUAN",
      "symbol" : "¥",
      "rate" : "7.240000",
      "rateFloat" : "7.240000",
      "updateTime" : "2025/05/30 01:53:40",
      "createTime" : "2025/05/30 01:53:40"
    }, {
      "currencyId" : "GBP",
      "currencyName" : "英鎊",
      "currencyEName" : "British Pound Sterling",
      "symbol" : "£",
      "rate" : "43984.02",
      "rateFloat" : "43984.0203",
      "updateTime" : "2025/05/30 01:53:49",
      "createTime" : "2024/09/02 15:07:20"
    } ]
  }
}
```

```
========================================
```

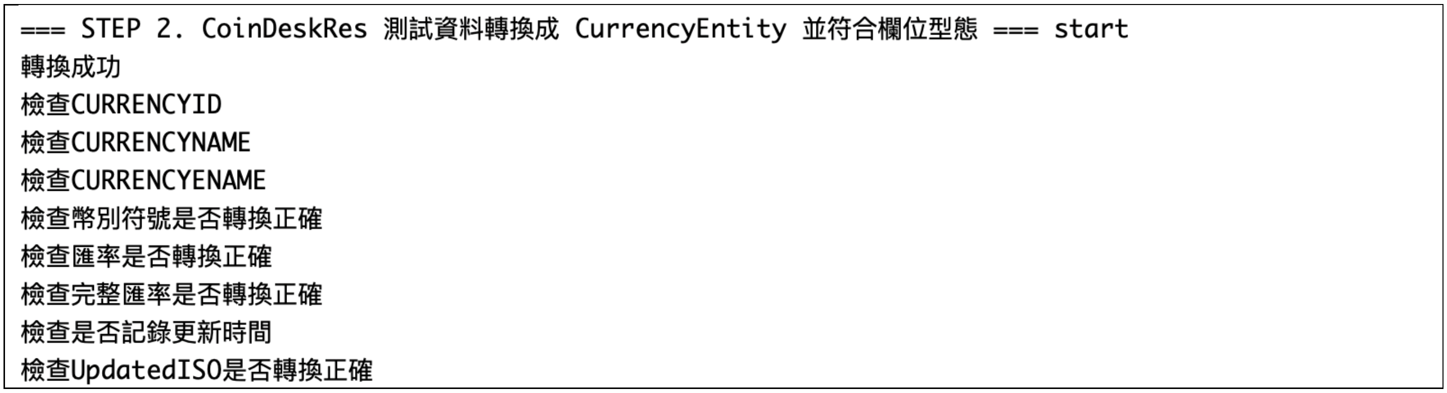
四、SERVICE 層，COINDESK API 資料轉換成 CURRENCYINFO TABLE 欄位流程

Step 1.



```
=== STEP 1. 準備 CoinDeskRes 測試資料 === start
轉換完成，結果：{
  "time" : {
    "updated" : "May 29, 2023 12:00:00 UTC",
    "updatedISO" : "2023-05-29T12:00:00+00:00",
    "updateduk" : "May 29, 2023 at 13:00 BST"
  },
  "disclaimer" : null,
  "chartName" : null,
  "bpi" : {
    "USD" : {
      "code" : null,
      "symbol" : "&#36;",
      "rate" : "1,030,000.011",
      "description" : "US Dollar",
      "rate_float" : "1030000.01111"
    }
  }
}
```

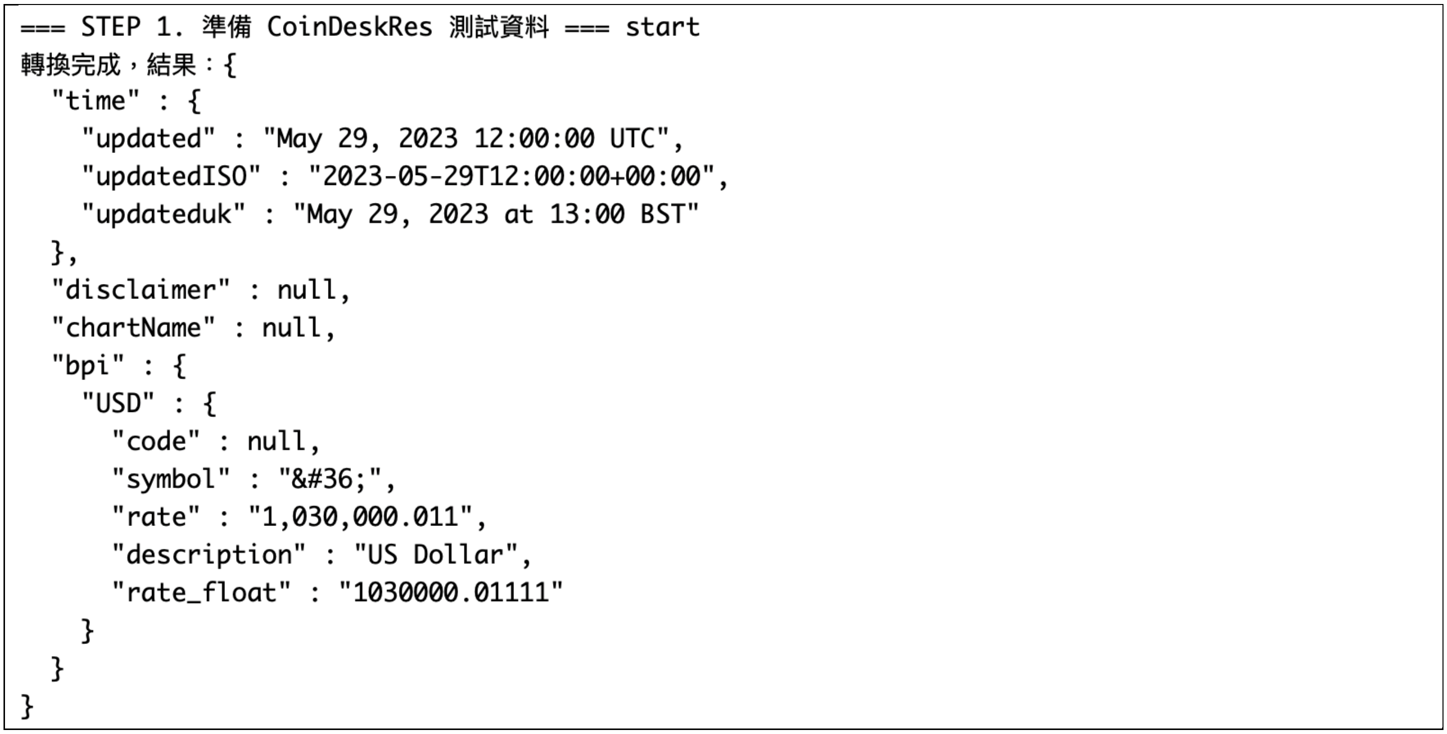
Step 2.



```
=== STEP 2. CoinDeskRes 測試資料轉換成 CurrencyEntity 並符合欄位型態 === start
轉換成功
檢查CURRENCYID
檢查CURRENCYNAME
檢查CURRENCYENAME
檢查幣別符號是否轉換正確
檢查匯率是否轉換正確
檢查完整匯率是否轉換正確
檢查是否記錄更新時間
檢查UpdatedISO是否轉換正確
```

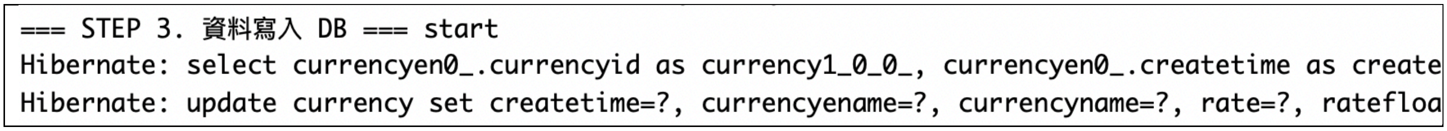
五、SERVICE 層，COINDESK API 資料寫入 CURRENCYINFO TABLE 測試流程

Step 1.



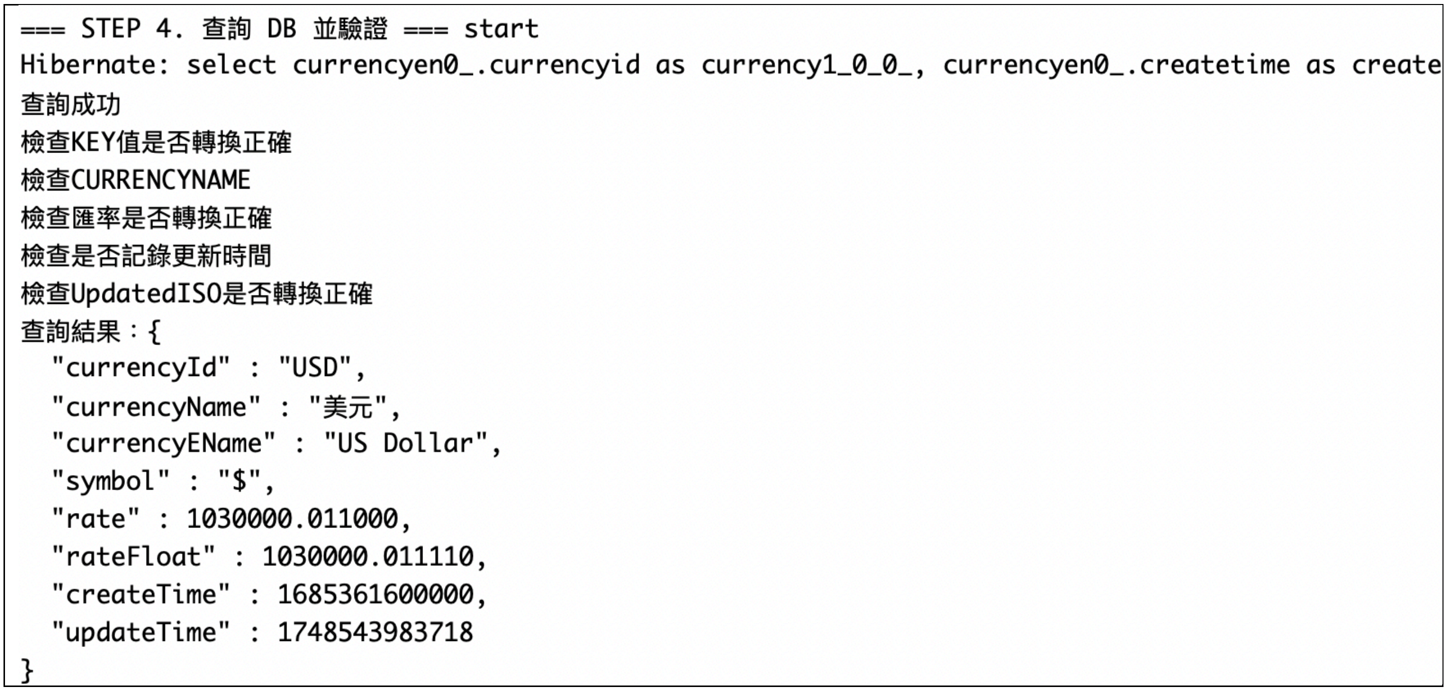
```
=== STEP 1. 準備 CoinDeskRes 測試資料 === start
轉換完成，結果：{
  "time" : {
    "updated" : "May 29, 2023 12:00:00 UTC",
    "updatedISO" : "2023-05-29T12:00:00+00:00",
    "updateduk" : "May 29, 2023 at 13:00 BST"
  },
  "disclaimer" : null,
  "chartName" : null,
  "bpi" : {
    "USD" : {
      "code" : null,
      "symbol" : "&#36;",
      "rate" : "1,030,000.011",
      "description" : "US Dollar",
      "rate_float" : "1030000.01111"
    }
  }
}
```

Step 3.



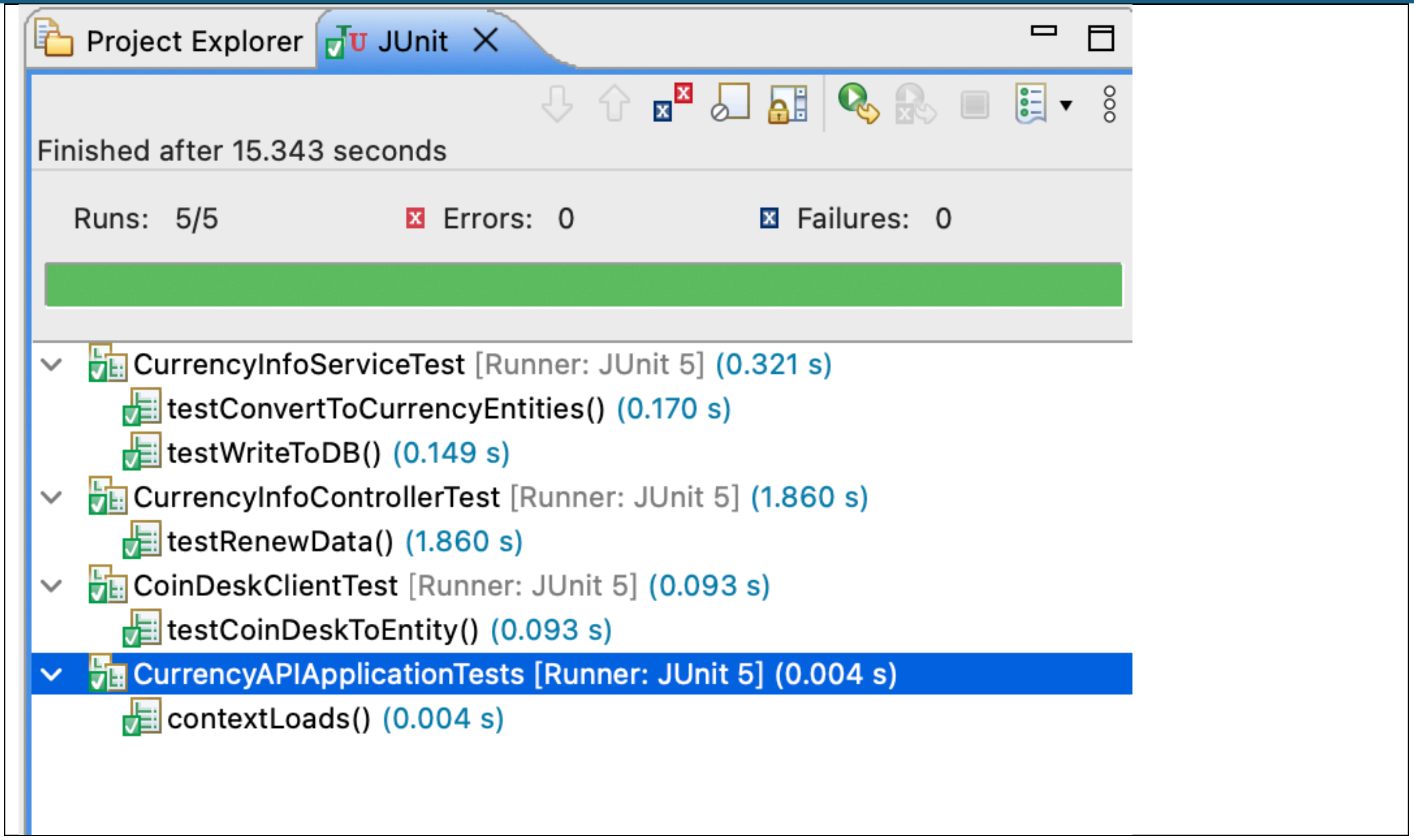
```
=== STEP 3. 資料寫入 DB === start
Hibernate: select currencyen0_.currencyid as currency1_0_0_, currencyen0_.createtime as create
Hibernate: update currency set createtime=?, currencyename=?, currencyname=?, rate=?, ratefloa
```

Step 4.



```
=== STEP 4. 查詢 DB 並驗證 === start
Hibernate: select currencyen0_.currencyid as currency1_0_0_, currencyen0_.createtime as create
查詢成功
檢查KEY值是否轉換正確
檢查CURRENCYNAME
檢查匯率是否轉換正確
檢查是否記錄更新時間
檢查UpdatedISO是否轉換正確
查詢結果：{
  "currencyId" : "USD",
  "currencyName" : "美元",
  "currencyEName" : "US Dollar",
  "symbol" : "$",
  "rate" : 1030000.011000,
  "rateFloat" : 1030000.011110,
  "createTime" : 1685361600000,
  "updateTime" : 1748543983718
}
```

六、透過 JUNIT 執行所有測試



Finished after 15.343 seconds

Runs: 5/5 Errors: 0 Failures: 0

```
CurrencyInfoServiceTest [Runner: JUnit 5] (0.321 s)
    testConvertToCurrencyEntities() (0.170 s)
    testWriteToDB() (0.149 s)
CurrencyInfoControllerTest [Runner: JUnit 5] (1.860 s)
    testRenewData() (1.860 s)
CoinDeskClientTest [Runner: JUnit 5] (0.093 s)
    testCoinDeskToEntity() (0.093 s)
CurrencyAPIApplicationTests [Runner: JUnit 5] (0.004 s)
    contextLoads() (0.004 s)
```