

Assignment 3

Answer 1: Errors and the fixed JSON data:-

The errors:-

1. Missing comma between key value pairs

Code: { "id": 102 "name": "Alex Chen",

Fix: add a comma after 102

2. Missing comma in array

Code: "courses": ["CS101" "CS102", "STAT101"],

Fix: Add a comma between “CS101” and “CS102”

3. Invalid Boolean Value

Code: "active": True,

Fix: Change True to true

4. Invalid value undefined

Code: "advisor": undefined,

Fix: Change undefined to null

5. Illegal newline character in string

Code: "notes": "Excellent student with strong analytical
skills"

Fix: Combine the string onto a single line

6. Missing comma between objects in an array

Code: "notes": "Excellent student..." } { "id": "103",

Fix: Add a comma after the closing brace } of the second student object

7. Inconsistent data type

Code: "id": "103",

Fix: Change the string “103” to the number 103 for consistency

8. Trailing comma

Code: "special_programs": ["honors", "research"], }

Fix: Remove the comma after the closing bracket]

9. Missing comma between root key value pairs

Code: "last_updated": "2024-09-15T10:30:00Z" "total_students": 3 }

Fix: Add a comma after the last_updated value

Fixed JSON data:-

```
{
  "students": [
    {
      "id": 101,
      "name": "Sarah Johnson",
      "courses": [
        "CS101",
        "MATH200",
        "ENG150"
      ],
      "gpa": 3.85,
      "active": true,
      "graduation_date": null
    },
    {
      "id": 102,
      "name": "Alex Chen",
      "courses": [
        "CS101",
        "CS102",
        "STAT101"
      ],
      "gpa": 3.92,
      "active": true,
      "advisor": null,
      "notes": "Excellent student with strong analytical skills"
    },
  ],
}
```

```
{
  "id": 103,
  "name": "Maria Rodriguez",
  "courses": [],
  "gpa": 3.67,
  "active": false,
  "special_programs": [
    "honors",
    "research"
  ]
},
{
  "last_updated": "2024-09-15T10:30:00Z",
  "total_students": 3
}
```

Answer 2: Answers of the questions:-

a. How many feature flags are currently defined, and which ones are active?

Ans: There are two feature flags defined in the configuration. Only the `new_ui` feature flag is active, as its `enabled` property is set to `true`. The `analytics` flag is disabled (`enabled = false`).

b. What happens when the log file reaches 100MB?

Ans: Based on the configuration in the `[logging]` section, when the log file at `/var/log/myapp.log` reaches its `max_size` of 100MB, the log file will be rotated. So, once it hits 100MB, the current log gets archived (like renamed or compressed, depending on the logging system), and a fresh log file starts. This prevents a single log file from growing indefinitely and consuming all available disk space.

c. If you wanted to make the server accessible only from localhost, what should you change?

Ans: You should change the host value in the [server] section. The current setting (host = "0.0.0.0") means that the server will listen for connections on all available network interfaces (e.g., Wi-Fi, Ethernet), making it accessible from other machines on the network. Changing the host to 127.0.0.1 (host = "127.0.0.1", the standard IPv4 loopback address) or its alias localhost (host = "localhost") will restrict the server to accept connections originating only from the machine it is running on.

d. Calculate the total number of seconds that cached items will remain valid.

Ans: Cached items will remain valid for 3600 seconds. This is specified by the ttl (Time To Live) key in the [cache] section: ttl = 3600. This is equivalent to 1 hour.

e. Explain the difference between the [feature_flags] and [[feature_flags]] syntax.

Ans: Difference between the two:-

[table] (Single Brackets): This syntax defines a static table (similar to a dictionary or object). We can only define a table with a specific name once in the configuration file. All key value pairs that follow belong to this table until a new table is defined.

Example: [server] defines a single, unique object for server settings.

[[array_of_tables]] (Double Brackets): This syntax defines an element in an array of tables. Each time we use this syntax with the same name, we add a new table (object) to the end of the array. This allows us to define a list of complex objects.

Example: [[feature_flags]] is used twice. This creates an array named feature_flags which contains two distinct table elements, one for the "new_ui" flag and one for the "analytics" flag.