**Calendar Service**

**Intro**

The aim of this exercise is to write a simple calendar service. The service has to accept calendar events comprised of a date-time and description, in JSON format, and save them *persistently*. On request, the service should return the saved calendar events in a JSON format aligned to the input one. The full protocol implemented by the service is provided [below](https://dev.azure.com/picuk/PIC_SharedServices/_git/Recruitment?path=/calendar_service/README.md&version=GBmain&anchor=protocol).

**Exercise Objectives**

* Provide a calendar service implementation in Python.
* Provide a Dockerfile for packaging of the service.
* Provide instructions or a script code for building and running the containerised application.

**Protocol**

**Endpoints**

* /events (POST): Accepts events in [event payload format](https://dev.azure.com/picuk/PIC_SharedServices/_git/Recruitment?path=/calendar_service/README.md&version=GBmain&anchor=event-payload-format). Returns the inserted event as a JSON object.
* /events/<ID>[?datetime\_format=<STRPTIME FORMAT>] (GET): Returns the named event in [event payload format](https://dev.azure.com/picuk/PIC_SharedServices/_git/Recruitment?path=/calendar_service/README.md&version=GBmain&anchor=event-payload-format). The optional query parameter datetime\_format is described in [arguments](https://dev.azure.com/picuk/PIC_SharedServices/_git/Recruitment?path=/calendar_service/README.md&version=GBmain&anchor=arguments). Returns the event with matching id as a JSON object.
* /events[?][datetime\_format=<STRPTIME FORMAT>][&][from\_time=<DATE TIME>][&][to\_time=<DATE TIME>] (GET): Returns all events falling within a date range. Where the date range defaults to "today" at 00:00:00 to now. The optional query parameters are described in [arguments](https://dev.azure.com/picuk/PIC_SharedServices/_git/Recruitment?path=/calendar_service/README.md&version=GBmain&anchor=arguments). Returns a list of matching event JSON objects.

**Event Payload Format**

The format for insertion and return of calendar events is:

{

"description": "<FREE FORM EVENT DESCRIPTION>",

"time": "<DATE TIME>",

"id": "<NUMERIC ID>"

}

where the id field not only contained in queries.

**Arguments**

* datetime\_format: Date-time format for parsing/printing of dates. Compatible with [strptime](https://pubs.opengroup.org/onlinepubs/007904875/functions/strptime.html) /[strftime](https://pubs.opengroup.org/onlinepubs/007904875/functions/strftime.html)  format specification. The default value for this argument is %Y-%m-%dT%H:%M:%S, e.g. 2024-01-01T00:00:00.
* from\_time: Specifies the start of a date range. The expected date time format is governed by the value/default of the datetime\_format argument. Defaults to start of the current day.
* to\_time: Specifies the end of a date range. The expected date time format is governed by the value/default of the datetime\_format argument. Defaults to the datetime of request receipt.