UniTime: Agile API Creation to Supply Data to Other Systems

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What is UniTime?
Making UniTime Data Useful To Others
API’s On The Fly
Demo
Questions
What is UniTime?

UniTIme

Comprehensive Academic Scheduling Solution

Five Components: Course Timetabling, Student Scheduling, Exam Timetabling, Instructor Scheduling, Event Management

Uses State of the Art Optimization Algorithms

Web-Based Distributed Data Entry and Timetabling in a Multi-User Environment
Making UniTime Data Useful To Others

UniTime Contains A Large Amount of Data

- **Course Data**
  - Configurations
  - Instructors
  - Times / Rooms
  - Enrollments
- **Exam Data**
  - Student Conflicts
  - Times / Rooms
- **Room Data**
  - Capacity
  - Features
  - Location
  - Usage
- **Instructor Data**
  - Courses Taught
  - Preferences
  - Help Sessions
- **Student Data**
  - Schedules
  - Course Requests
  - Preferences
  - Advisor Recommendations
- **Event Data**
  - Events
  - Times
  - Associated Organizations
- **Event Data**
  - Events
  - Times
  - Associated Organizations

**Current & Historical**
Making UniTime Data Useful To Others

UniTime Has Many Standard API’s for Extracting Data

- User Roles
- Curricula
- Instructors
- Data Exchange
- Buildings
- Class Info
- Enrollments
- Online Student Scheduling
- Instructor Schedule
- Student Groups
- Rooms
- Events
API’s On The Fly

UniTime Has Two Non-Standard API’s for Extracting Data

- HQL Report
- Script
API’s On The Fly

HQL Report API - Quick and Easy

Administrators Can Create Reports Through the HQL Reports User Interface That Other Users Can Run

Any Stored HQL Report Can Be Run As an API Call

Secured Via a User Token

Can Return Data in CSV, JSON, or XLS format
API's On The Fly

HQL Report API - Sample Call


Output:
"Subject","Course","Current_Enrollment","Last_Like_Enrollment"
"AAE","19000","0","0"
"AAE","20000","326","261"
"AAE","20300","357","273"
"AAE","20400","68","71"
"AAE","20401","93","73"
"AAE","25100","250","202"
"AAE","29199","0","7"
API’s On The Fly

Script API - When Something More Complex is Needed

The Script User Interface Allows Administrators to Create, Store, and Run Scripts That Use Scripting Languages to Call UniTime Java Code

Any Script Can Be Run As an API

Secured Via a User Token

Can Return Data in Any Format the Script Creator Wishes to Support
### API’s On The Fly

**Script API - Sample Call**

**Call:**
```
curl "https://timetable.mypurdue.purdue.edu/Timetabling/api/script?term=Summer2021PWL&script=Course%20Reports%3A%20Course%20History%20Enrollment%20By%20Major&token=$(cat token.txt)&queue=false&yearsOfHistory=1"
```

**Output:**

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Course Number</th>
<th>Campus</th>
<th>Term</th>
<th>Year</th>
<th>Major</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2021</td>
<td>AAE</td>
<td>10</td>
</tr>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2020</td>
<td>AAE</td>
<td>22</td>
</tr>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2021</td>
<td>ECEB</td>
<td>2</td>
</tr>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2020</td>
<td>ECEB</td>
<td>5</td>
</tr>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2021</td>
<td>ENFY</td>
<td>4</td>
</tr>
<tr>
<td>AAE</td>
<td>20300</td>
<td>PWL</td>
<td>Summer</td>
<td>2020</td>
<td>ENFY</td>
<td>5</td>
</tr>
</tbody>
</table>

...
API’s On The Fly
The Applications are Endless

- Data for Tableau Dashboards
- Data for Homegrown Applications
- Data for Commercial Applications
- Data for a Student Information System
- It Would Be Helpful If ....
Demo
Questions
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Thank You!

UniTime - https://unitime.org