ALICE Service Work System

Norfolk, US - May 2023 | CHEP 2023

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Glance

COPPE/Poli/UFRJ
Laboratório de Processamento de Sinais
Inteligência Computacional. Inovação

UFRJ
UNIVERSIDADE FEDERAL
DO RIO DE JANEIRO

CERN

ALICE

Conception

Large Hadron Collider Runs

1 — 2 — 3 — 4

2009 → 2013

2015 → 2018

2022 → today

Tasks division for runs 3 and 4

TASK CLASS

- 01 Experimental shifts in the ALICE Run Control Centre
- 02 On-call shifts
- 03 Detector maintenance, operation, calibration, quality control, data processing, outreach, coordination roles and more…

ALICE SAMS System

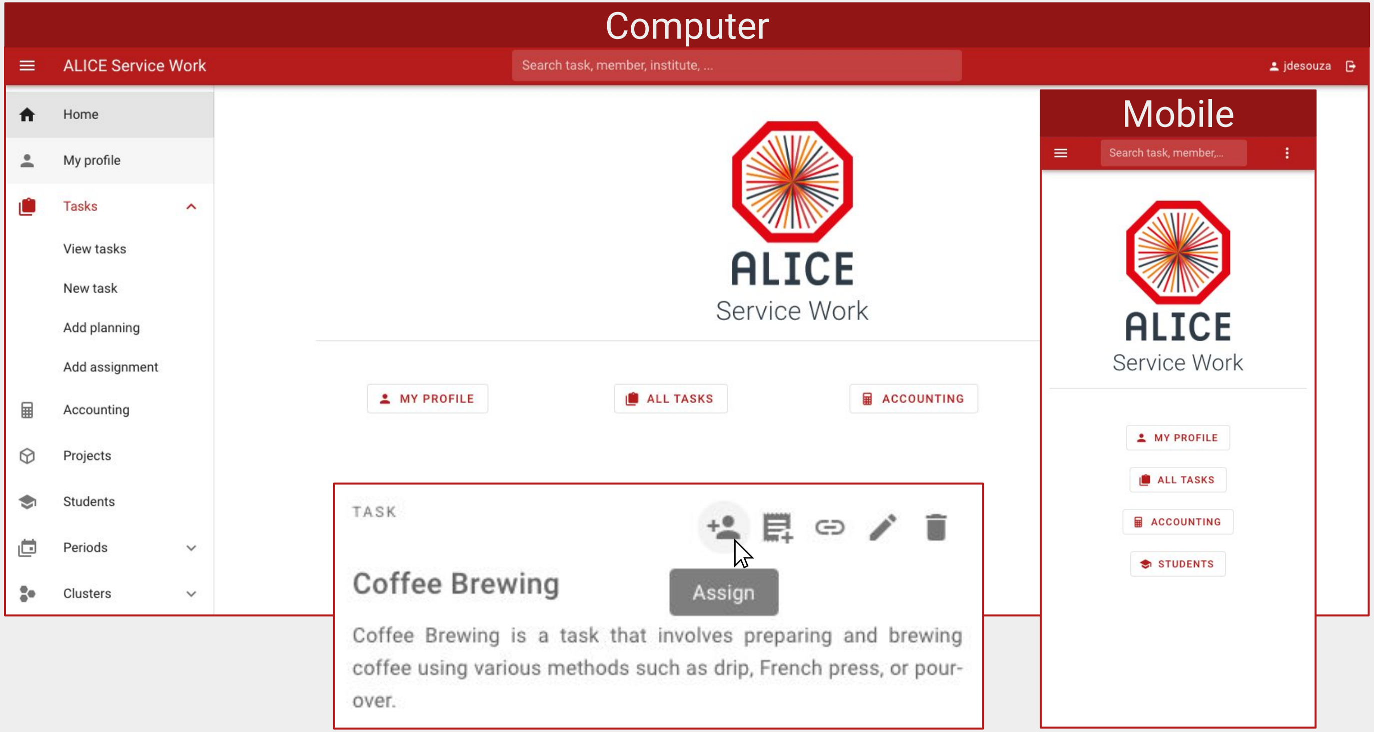
ALICE
Service Work

Usage statistics

★	1014	Members
★	388	Tasks
★	154	Institutions
★	40	Countries
★	29	Projects

Design

- Clean and user-friendly interface.
- Quick and responsive.
- Respects experiment visual identity.


Computer
ALICE Service Work
Search task, member, institute, ...
jdesouza
Home
My profile
Tasks
View tasks
New task
Add planning
Add assignment
Accounting
Projects
Students
Periods
Clusters
ALICE
Service Work
MY PROFILE
ALL TASKS
ACCOUNTING
TASK
Assign
Mobile
Search task, member,...
ALICE
Service Work
MY PROFILE
ALL TASKS
ACCOUNTING
STUDENTS

Coffee Brewing

Coffee Brewing is a task that involves preparing and brewing coffee using various methods such as drip, French press, or pour-over.

Features

Task management
Create, plan, assign and manage work.

Year planning
Plan ahead annual workload.

Credits accounting (FTE)
Track work progress.

Members' coordination
Manage credits limit, monitor progress and track assignments.

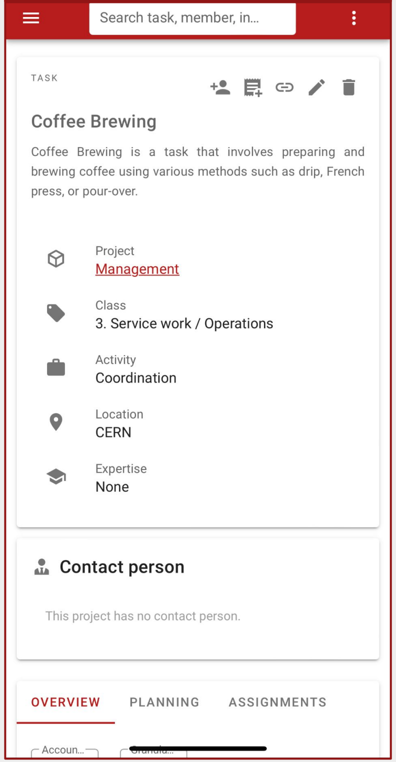
Clusterization
Group and share credits across institutes.

Statistics
Improved data visualization.

ALICE
Service Work

Task Management

Task Details



Search task, member, in...

TASK

Coffee Brewing

Coffee Brewing is a task that involves preparing and brewing coffee using various methods such as drip, French press, or pour-over.

Project
Management

Class
3. Service work / Operations

Activity
Coordination

Location
CERN

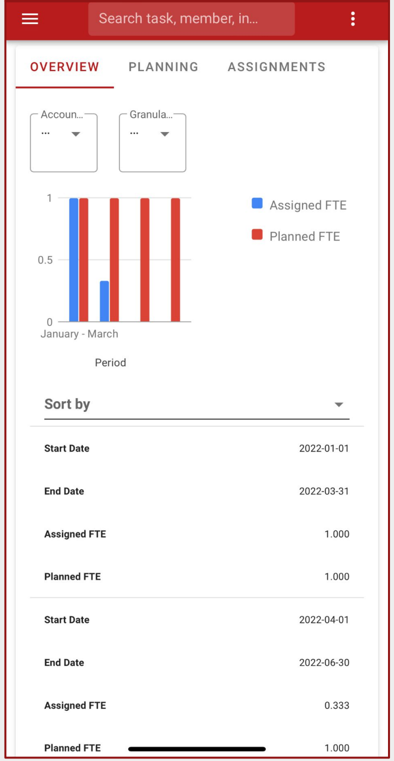
Expertise
None

Contact person

This project has no contact person.

OVERVIEW
PLANNING
ASSIGNMENTS
Accoun...
Granula...

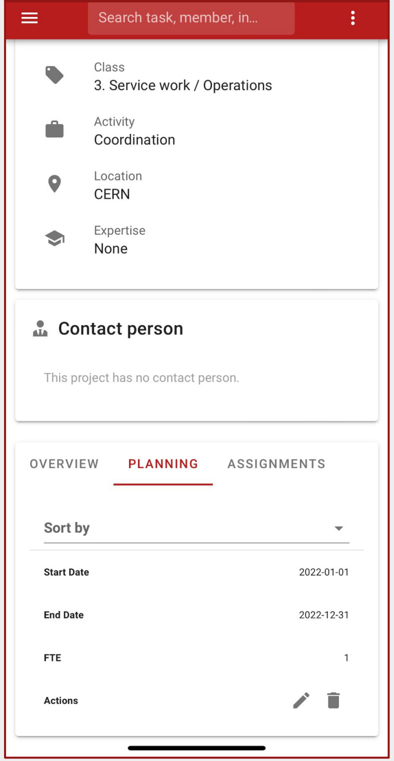
Task Overview



Search task, member, in...
OVERVIEW
PLANNING
ASSIGNMENTS
Accoun...
...
Granula...
...
1
0.5
0
January - March
Period
Assigned FTE
Planned FTE
Sort by

Start Date	2022-01-01
End Date	2022-03-31
Assigned FTE	1.000
Planned FTE	1.000
Start Date	2022-04-01
End Date	2022-06-30
Assigned FTE	0.333
Planned FTE	1.000

Task Planning



Search task, member, in...

Class
3. Service work / Operations

Activity
Coordination

Location
CERN

Expertise
None

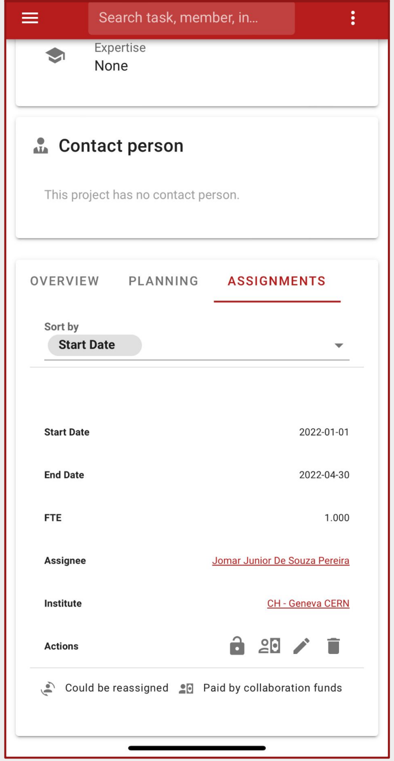
Contact person

This project has no contact person.

OVERVIEW
PLANNING
ASSIGNMENTS
Sort by

Start Date	2022-01-01
End Date	2022-12-31
FTE	1
Actions	

Task Assignments



Search task, member, in...

Expertise
None

Contact person

This project has no contact person.

OVERVIEW
PLANNING
ASSIGNMENTS

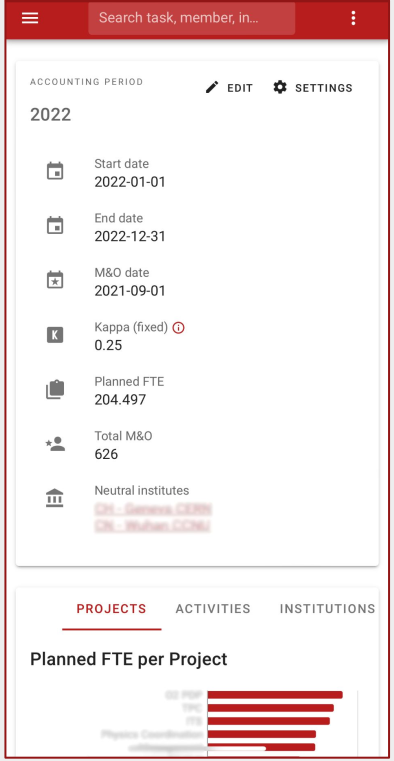
Sort by
Start Date

Start Date	2022-01-01
End Date	2022-04-30
FTE	1.000
Assignee	Jomar Junior De Souza Pereira
Institute	CH - Geneva CERN
Actions	

Could be reassigned Paid by collaboration funds

Year Planning

Period Details



Search task, member, in...

ACCOUNTING PERIOD

EDIT
SETTINGS

2022

Start date
2022-01-01

End date
2022-12-31

M&O date
2021-09-01

Kappa (fixed)
0.25

Planned FTE
204.497

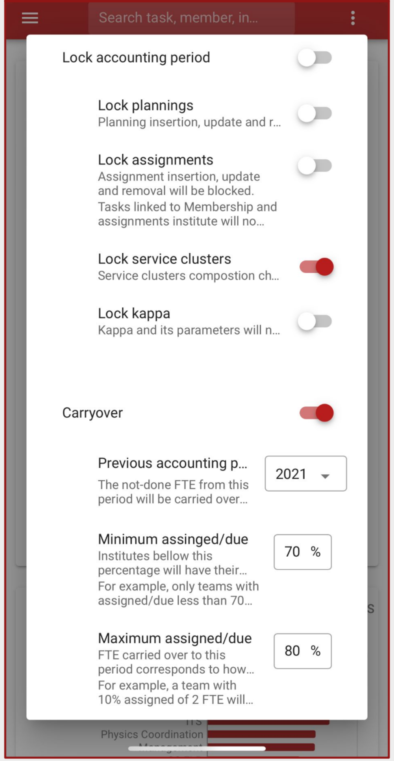
Total M&O
626

Neutral institutes
[redacted]

PROJECTS
ACTIVITIES
INSTITUTIONS

Planned FTE per Project

Period Settings



Search task, member, in...

Lock accounting period

Lock plannings
Planning insertion, update and r...

Lock assignments
Assignment insertion, update and removal will be blocked. Tasks linked to Membership and assignments institute will no...

Lock service clusters
Service clusters compostion ch...

Lock kappa
Kappa and its parameters will n...

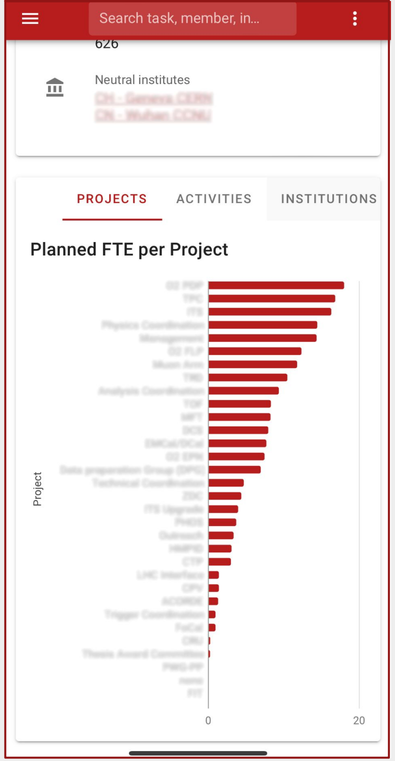
Carryover

Previous accounting p... — 2021
The not-done FTE from this period will be carried over...

Minimum assinged/due — 70 %
Institutes bellow this percentage will have their...
For example, only teams with assigned/due less than 70...

Maximum assigned/due — 80 %
FTE carried over to this period corresponds to how...
For example, a team with 10% assigned of 2 FTE will...

Period Statistics



Search task, member, in...

626

Neutral institutes
[redacted]

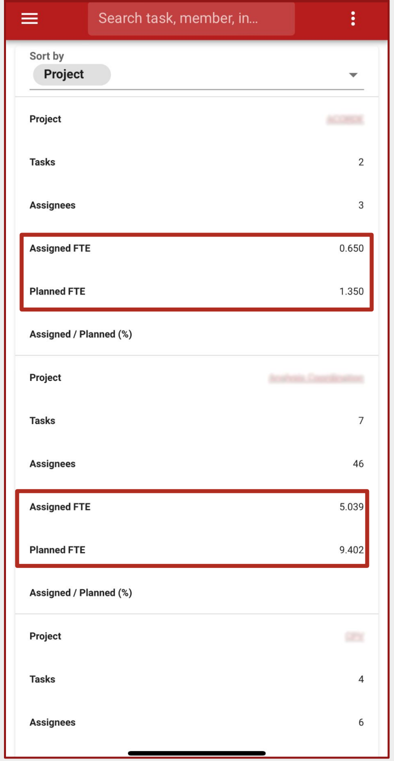
PROJECTS
ACTIVITIES
INSTITUTIONS

Planned FTE per Project

Project
0
20

Credits Accounting

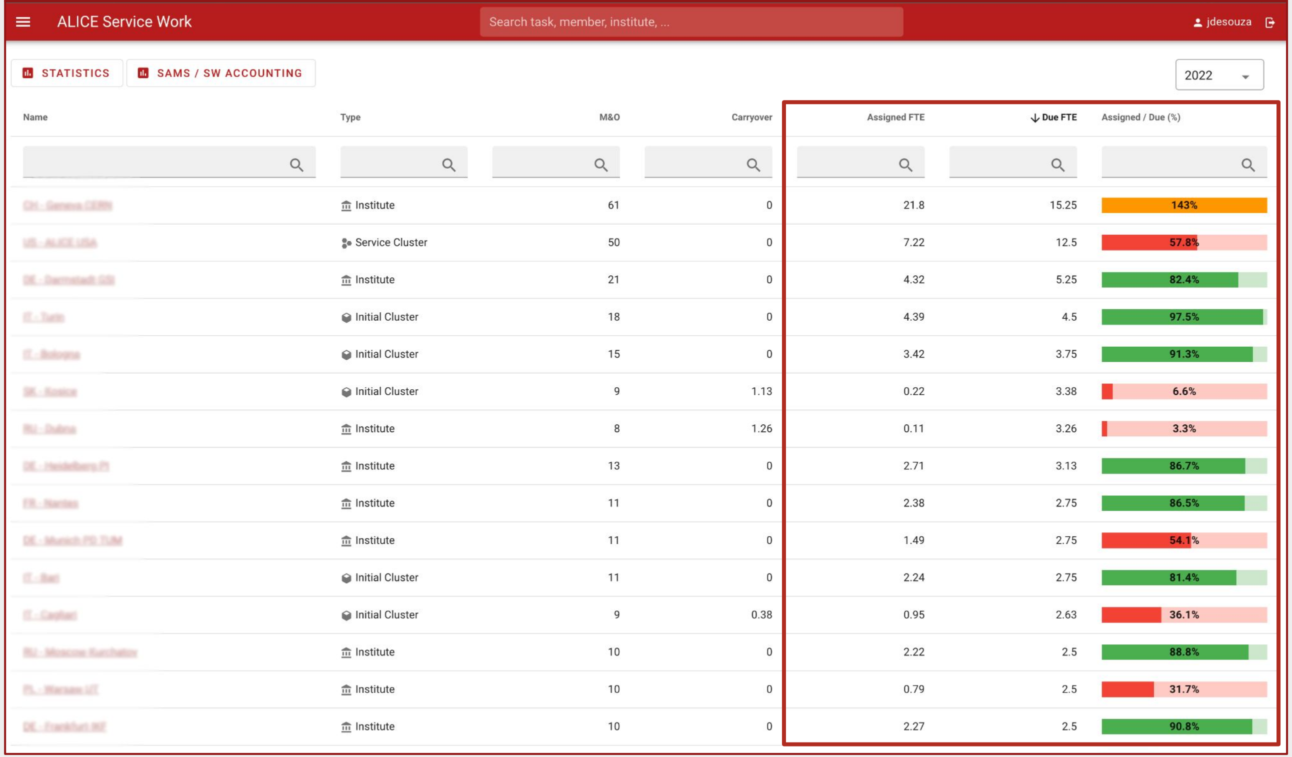
Projects accounting


Search task, member, in...

Sort by
Project

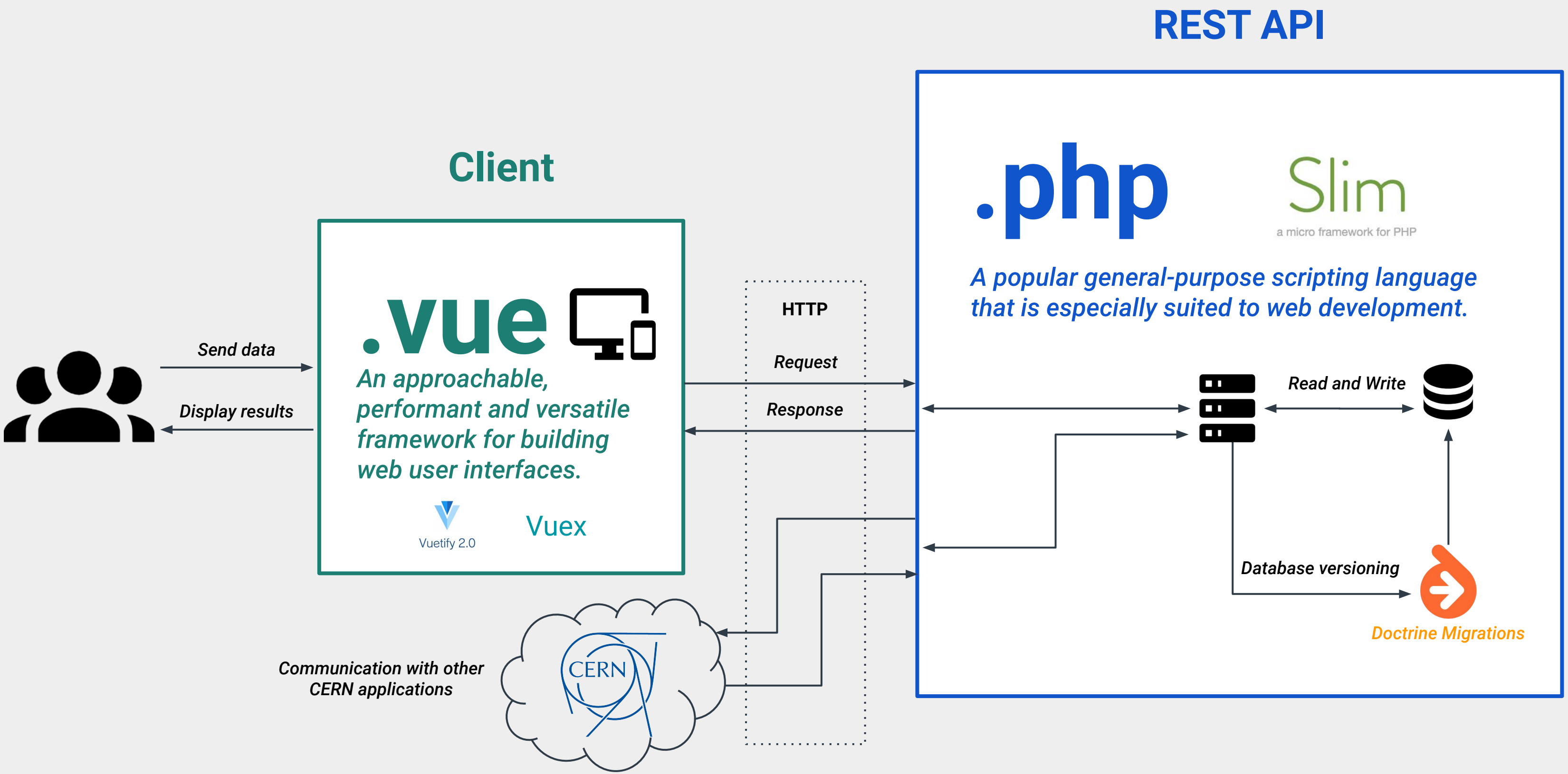
Project	[redacted]
Tasks	2
Assignees	3
Assigned FTE	0.650
Planned FTE	1.350
Assigned / Planned (%)	
Project	[redacted]
Tasks	7
Assignees	46
Assigned FTE	5.039
Planned FTE	9.402
Assigned / Planned (%)	
Project	[redacted]
Tasks	4
Assignees	6

Institutions accounting


ALICE Service Work
Search task, member, institute, ...
jdesouza
STATISTICS
SAMS / SW ACCOUNTING
2022

Name	Type	M&O	Carryover	Assigned FTE	↓ Due FTE	Assigned / Due (%)
[redacted]	Institute	61	0	21.8	15.25	143%
[redacted]	Service Cluster	50	0	7.22	12.5	57.8%
[redacted]	Institute	21	0	4.32	5.25	82.4%
[redacted]	Initial Cluster	18	0	4.39	4.5	97.5%
[redacted]	Initial Cluster	15	0	3.42	3.75	91.3%
[redacted]	Initial Cluster	9	1.13	0.22	3.38	6.6%
[redacted]	Institute	8	1.26	0.11	3.26	3.3%
[redacted]	Institute	13	0	2.71	3.13	86.7%
[redacted]	Institute	11	0	2.38	2.75	86.5%
[redacted]	Institute	11	0	1.49	2.75	54.1%
[redacted]	Initial Cluster	11	0	2.24	2.75	81.4%
[redacted]	Initial Cluster	9	0.38	0.95	2.63	36.1%
[redacted]	Institute	10	0	2.22	2.5	88.8%
[redacted]	Institute	10	0	0.79	2.5	31.7%
[redacted]	Institute	10	0	2.27	2.5	90.8%

Implementation



Client

.vue

An approachable, performant and versatile framework for building web user interfaces.

Vuetify 2.0

Vuex

REST API

.php

Slim

a micro framework for PHP

A popular general-purpose scripting language that is especially suited to web development.

Send data
Display results
HTTP
Request
Response
Read and Write
Database versioning
Doctrine Migrations
CERN
Communication with other CERN applications

Back-end architecture

Practices

Encapsulation
Protection from outside world.

Business rules
Separated and well defined.

Adapter
Morph any entry to a standard command.

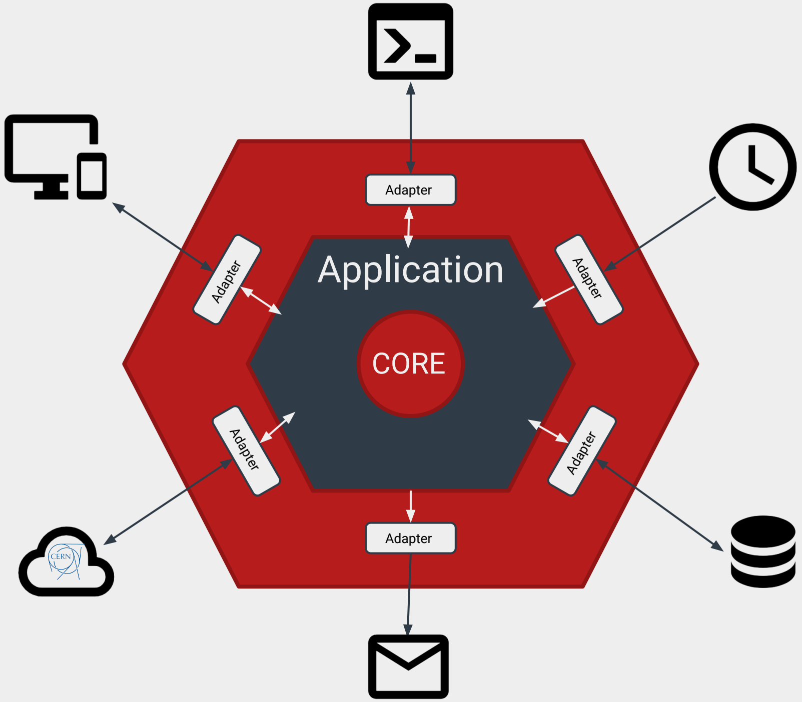
Results

Flexibility

Easy maintenance and testing

Newcomer-friendly

Hexagonal structure


Adapter
Adapter
Adapter
Application
CORE
Adapter
Adapter
Adapter
CERN

Contexts

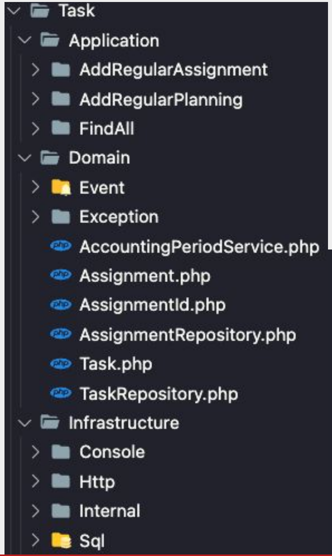
Self-contained

No dependencies between contexts, with their own:

Rules **Actions** **Entities**

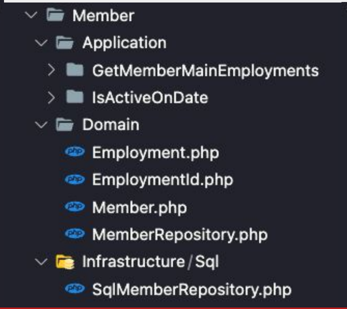
Which leads to: ∞ 🛠 +👤

Task



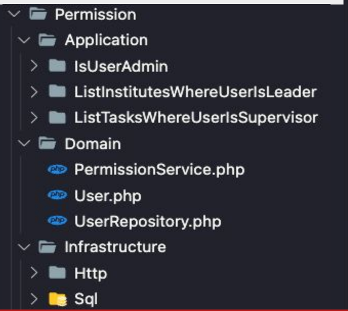
```
Task
  Application
    AddRegularAssignment
    AddRegularPlanning
    FindAll
  Domain
    Event
    Exception
    AccountingPeriodService.php
    Assignment.php
    AssignmentId.php
    AssignmentRepository.php
    Task.php
    TaskRepository.php
  Infrastructure
    Console
    Http
    Internal
    Sql
```

Member



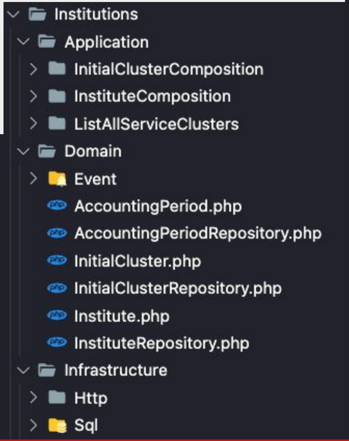
```
Member
  Application
    GetMemberMainEmployments
    IsActiveOnDate
  Domain
    Employment.php
    EmploymentId.php
    Member.php
    MemberRepository.php
  Infrastructure / Sql
    SqlMemberRepository.php
```

Permission



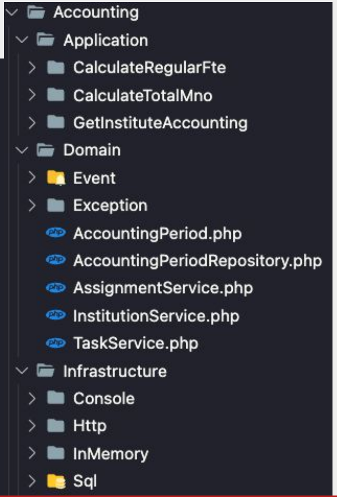
```
Permission
  Application
    IsUserAdmin
    ListInstitutesWhereUserIsLeader
    ListTasksWhereUserIsSupervisor
  Domain
    PermissionService.php
    User.php
    UserRepository.php
  Infrastructure
    Http
    Sql
```

Institution



```
Institutions
  Application
    InitialClusterComposition
    InstituteComposition
    ListAllServiceClusters
  Domain
    Event
    AccountingPeriod.php
    AccountingPeriodRepository.php
    InitialCluster.php
    InitialClusterRepository.php
    Institute.php
    InstituteRepository.php
  Infrastructure
    Http
    Sql
```

Accounting



```
Accounting
  Application
    CalculateRegularFte
    CalculateTotalMno
    GetInstituteAccounting
  Domain
    Event
    Exception
    AccountingPeriod.php
    AccountingPeriodRepository.php
    AssignmentService.php
    InstitutionService.php
    TaskService.php
  Infrastructure
    Console
    Http
    InMemory
    Sql
```

Future developments

Dockerization

Migrate to containerized environments.

Continuous deployment

Remove the time spent on manual deployments.

GitLab

Advanced search

More options for searching the dataset.

T5 - Glance Search Interface

May 9th, 2023 - 02:30 pm

PHP Version 8^

Stop using older versions of PHP.

ALICE Service Work System

Thanks!

jomar.junior@cern.ch

Glance

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Inteligência Computacional. Inovação

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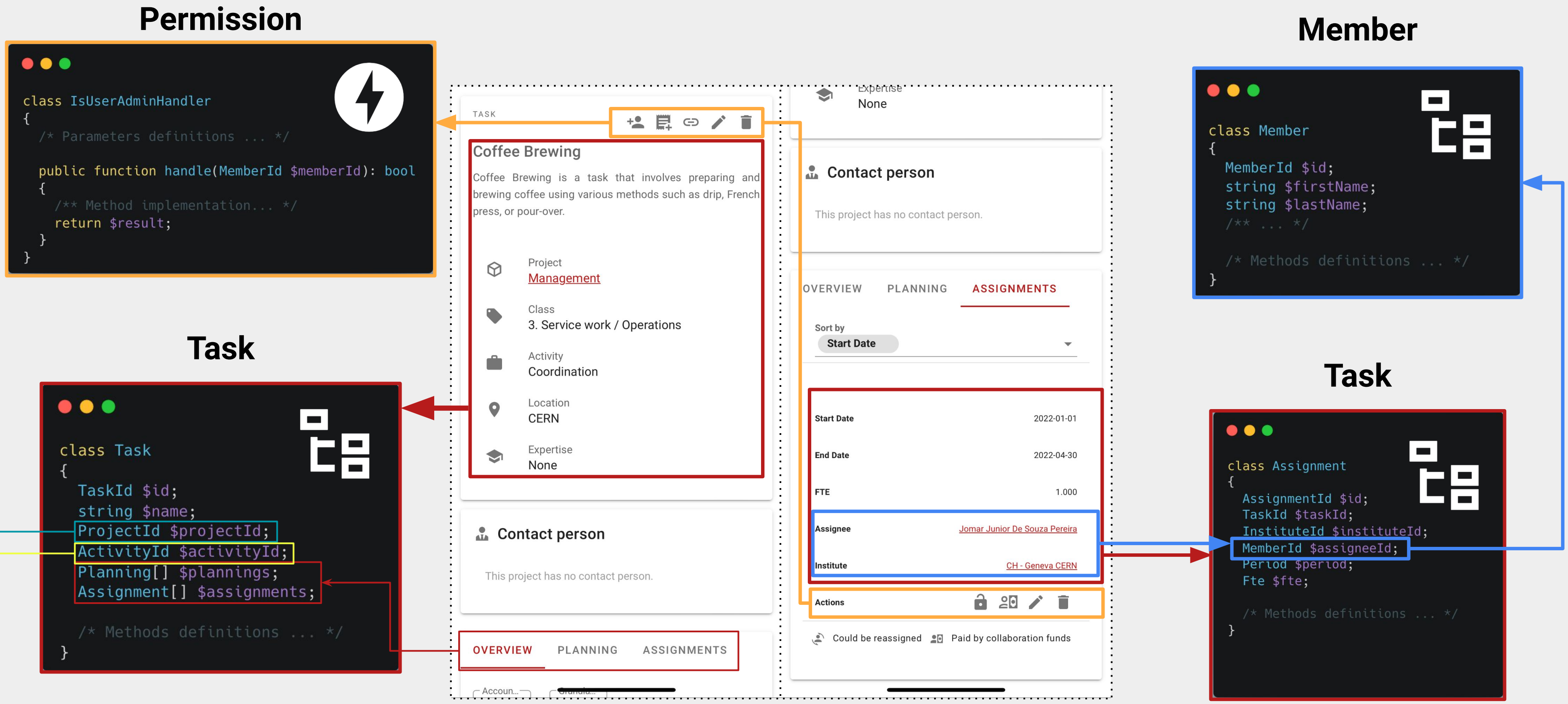
ALICE

Context to Front-end



Permission

```
class IsUserAdminHandler
{
  /* Parameters definitions ... */

  public function handle(MemberId $memberId): bool
  {
    /** Method implementation... */
    return $result;
  }
}
```

Task

```
class Task
{
  TaskId $id;
  string $name;
  ProjectId $projectId;
  ActivityId $activityId;
  Planning[] $plannings;
  Assignment[] $assignments;

  /* Methods definitions ... */
}
```

TASK

Coffee Brewing

Coffee Brewing is a task that involves preparing and brewing coffee using various methods such as drip, French press, or pour-over.

Project	Management
Class	3. Service work / Operations
Activity	Coordination
Location	CERN
Expertise	None

Contact person

This project has no contact person.

Expertise
None

Contact person

This project has no contact person.

Sort by
Start Date

Start Date	2022-01-01
End Date	2022-04-30
FTE	1.000
Assignee	Jomar Junior De Souza Pereira
Institute	CH - Geneva CERN
Actions	

Could be reassigned Paid by collaboration funds

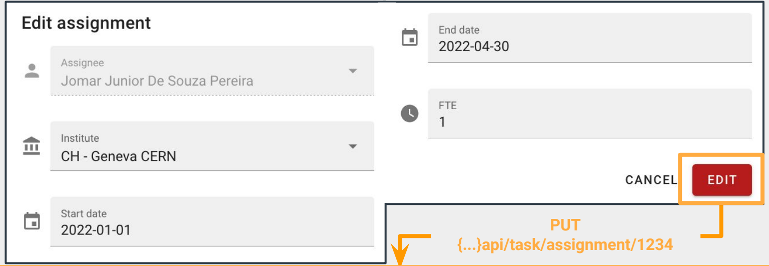
Member

```
class Member
{
  MemberId $id;
  string $firstName;
  string $lastName;
  /** ... */

  /* Methods definitions ... */
}
```

Task

```
class Assignment
{
  AssignmentId $id;
  TaskId $taskId;
  InstituteId $instituteId;
  MemberId $assigneeId;
  Period $period;
  Fte $fte;

  /* Methods definitions ... */
}
```

Infrastructure to Domain to Infrastructure



Edit assignment

Assignee: Jomar Junior De Souza Pereira

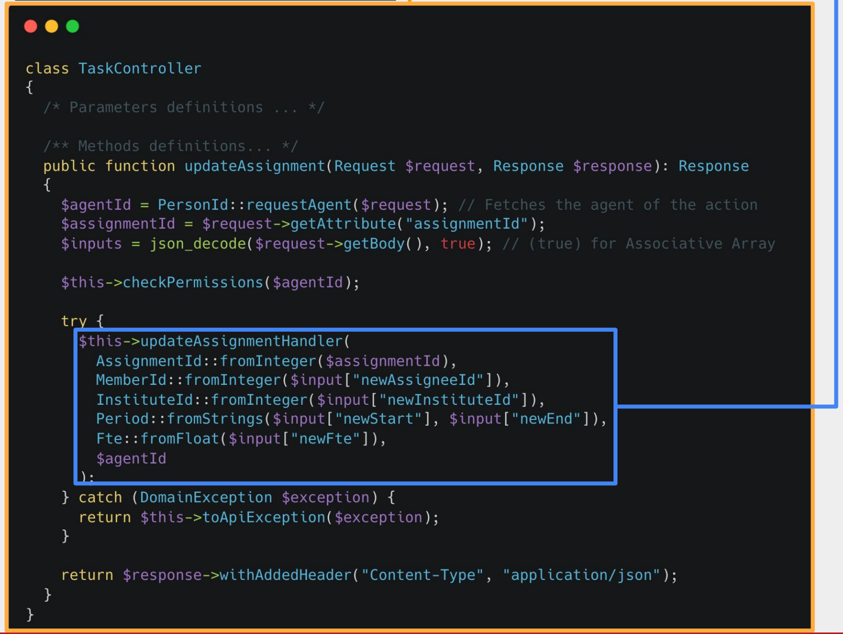
Institute: CH - Geneva CERN

Start date: 2022-01-01

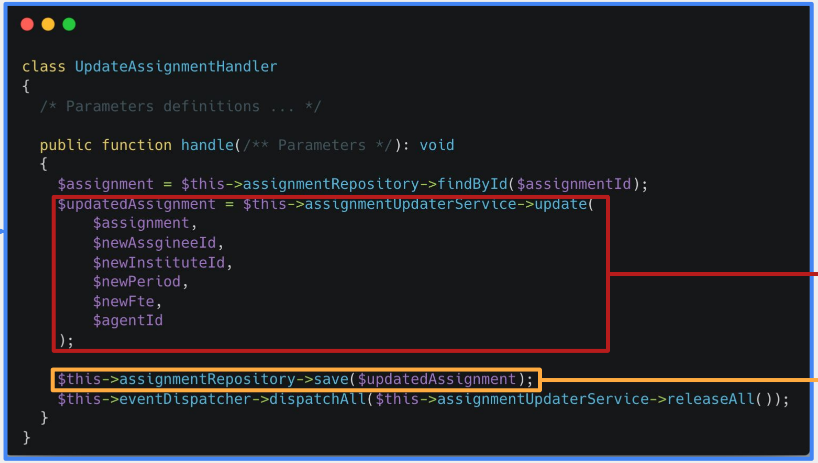
End date: 2022-04-30

FTE: 1

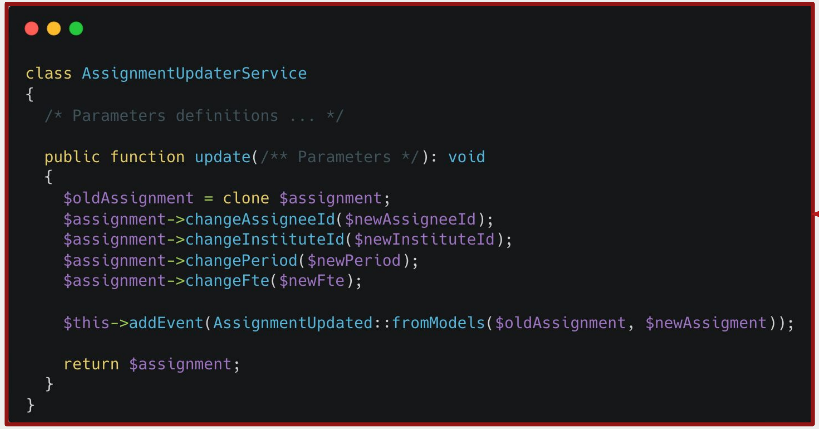
PUT
{...}api/task/assignment/1234



```
class TaskController
{
  /* Parameters definitions ... */

  /** Methods definitions... */
  public function updateAssignment(Request $request, Response $response): Response
  {
    $agentId = PersonId::requestAgent($request); // Fetches the agent of the action
    $assignmentId = $request->getAttribute("assignmentId");
    $inputs = json_decode($request->getBody(), true); // (true) for Associative Array

    $this->checkPermissions($agentId);

    try {
      $this->updateAssignmentHandler(
        AssignmentId::fromInteger($assignmentId),
        MemberId::fromInteger($input["newAssigneeId"]),
        InstituteId::fromInteger($input["newInstituteId"]),
        Period::fromStrings($input["newStart"], $input["newEnd"]),
        Fte::fromFloat($input["newFte"]),
        $agentId
      );
    } catch (DomainException $exception) {
      return $this->toApiException($exception);
    }

    return $response->withAddedHeader("Content-Type", "application/json");
  }
}
```

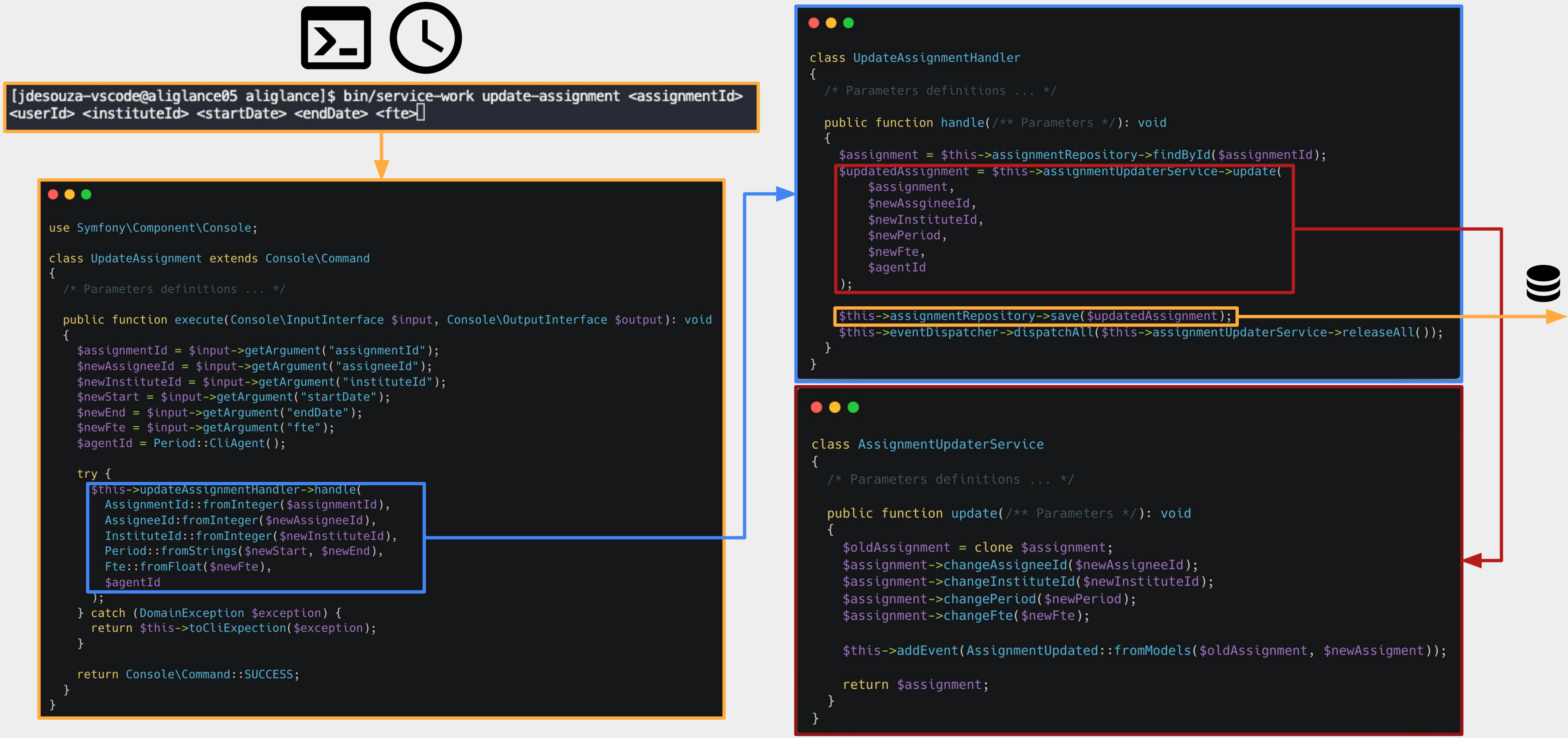


```
class UpdateAssignmentHandler
{
  /* Parameters definitions ... */

  public function handle(/** Parameters */): void
  {
    $assignment = $this->assignmentRepository->findById($assignmentId);
    $updatedAssignment = $this->assignmentUpdaterService->update(
        $assignment,
        $newAssgineeId,
        $newInstituteId,
        $newPeriod,
        $newFte,
        $agentId
    );

    $this->assignmentRepository->save($updatedAssignment);
    $this->eventDispatcher->dispatchAll($this->assignmentUpdaterService->releaseAll());
  }
}
```



```
class AssignmentUpdaterService
{
  /* Parameters definitions ... */

  public function update(/** Parameters */): void
  {
    $oldAssignment = clone $assignment;
    $assignment->changeAssigneeId($newAssigneeId);
    $assignment->changeInstituteId($newInstituteId);
    $assignment->changePeriod($newPeriod);
    $assignment->changeFte($newFte);

    $this->addEvent(AssignmentUpdated::fromModels($oldAssignment, $newAssigment));

    return $assignment;
  }
}
```

Infrastructure to Domain to Infrastructure



```
[jdesouza-vscode@aliglance05 aliglance]$ bin/service-work update-assignment <assignmentId>
<userId> <instituteId> <startDate> <endDate> <fte>
```

```php
use Symfony\Component\Console;

class UpdateAssignment extends Console\Command
{
 /* Parameters definitions ... */

 public function execute(Console\InputInterface $input, Console\OutputInterface $output): void
 {
  $assignmentId = $input->getArgument("assignmentId");
  $newAssigneeId = $input->getArgument("assigneeId");
  $newInstituteId = $input->getArgument("instituteId");
  $newStart = $input->getArgument("startDate");
  $newEnd = $input->getArgument("endDate");
  $newFte = $input->getArgument("fte");
  $agentId = Period::CliAgent();

  try {
   $this->updateAssignmentHandler->handle(
    AssignmentId::fromInteger($assignmentId),
    AssigneeId:fromInteger($newAssigneeId),
    InstituteId::fromInteger($newInstituteId),
    Period::fromStrings($newStart, $newEnd),
    Fte::fromFloat($newFte),
    $agentId
   );
  } catch (DomainException $exception) {
   return $this->toCliExpection($exception);
  }

  return Console\Command::SUCCESS;
 }
}
```

```php
class UpdateAssignmentHandler
{
 /* Parameters definitions ... */

 public function handle(/** Parameters */): void
 {
  $assignment = $this->assignmentRepository->findById($assignmentId);
  $updatedAssignment = $this->assignmentUpdaterService->update(
    $assignment,
    $newAssgineeId,
    $newInstituteId,
    $newPeriod,
    $newFte,
    $agentId
  );

  $this->assignmentRepository->save($updatedAssignment);
  $this->eventDispatcher->dispatchAll($this->assignmentUpdaterService->releaseAll());
 }
}
```

```php
class AssignmentUpdaterService
{
 /* Parameters definitions ... */

 public function update(/** Parameters */): void
 {
  $oldAssignment = clone $assignment;
  $assignment->changeAssigneeId($newAssigneeId);
  $assignment->changeInstituteId($newInstituteId);
  $assignment->changePeriod($newPeriod);
  $assignment->changeFte($newFte);

  $this->addEvent(AssignmentUpdated::fromModels($oldAssignment, $newAssigment));

  return $assignment;
 }
}
```

Jomar Junior de Souza Pereira | CHEP 2023