

Auth
- \$db
+ login(\$email, \$password) + logout() + isAuthenticated() + authorize(\$role) + getCurrentUser()

Validator
+ validateEmail(\$email) + validatePassword(\$password) + validateUsername(\$username) + validateText(\$text, \$minLength = 10, \$maxLength = 1000) + validateNumber(\$number, \$min = 1, \$max = PHP_INT_MAX) + validateDate(\$date, \$format = 'Y-m-d H:i:s') + validateUri(\$url)

Search
- \$db
+ searchCourses(\$keyword, \$filters = []) + searchTeachers(\$keyword) + searchCategories(\$keyword) + searchTags(\$keyword) + advancedSearch(\$keyword, \$filters = [])

Database
- \$host - \$username - \$password - \$dbname - \$connection
+ connect() + query(\$sql, \$params = []) + fetch(\$sql, \$params = []) + fetchAll(\$sql, \$params = []) + fetchColumn(\$sql, \$params = []) + insert(\$sql, \$params = []) + close()

Statistics
- \$db
+ getTotalCourses() + getTotalUsers() + getTotalTeachers() + getTotalStudents() + getMostPopularCourses(\$limit = 5) + getTopTeachers(\$limit = 5) + getMostPopularCategories(\$limit = 5) + getGlobalStatistics() + getTeacherStatistics(\$teacherId) + getCourseStatistics(\$courseId)

Pagination
- \$totalItems - \$itemsPerPage - \$currentPage - \$totalPages
+ calculateTotalPages() + getOffset() + getTotalPages() + getCurrentPage() + getPaginationLinks(\$baseUrl, \$queryParam = 'page')

Session
+ start() + set(\$key, \$value) + get(\$key, \$default = null) + has(\$key) + remove(\$key) + destroy() + regenerate() + isLoggedIn() + getUserId() + getUserRole()

User
- \$id - \$username - \$email - \$password - \$role - \$status - \$createdAt - \$updatedAt - \$db
+ register(\$username, \$email, \$password, \$role = 'student') + login(\$email, \$password) + logout() + updateProfile(\$data) + changePassword(\$oldPassword, \$newPassword) + fetchUserData(\$userId)

Admin
+ validateTeacherAccount(\$teacherId) + manageUser(\$userId, \$action) + manageContent(\$contentType, \$action, \$data) + manageCourse(\$action, \$data) + manageCategory(\$action, \$data) + manageTag(\$action, \$data) + viewGlobalStatistics()

Student
+ enrollInCourse(\$courseId) + unenrollFromCourse(\$courseId) + getEnrolledCourses() + getCourseDetails(\$courseId) + downloadCertificate(\$courseId)

Enrollment
- \$id - \$studentId - \$courseId - \$enrolledAt - \$status - \$db
+ enroll(\$studentId, \$courseId) + unenroll(\$enrollmentId) + getByStudent(\$studentId) + getByCourse(\$courseId) + updateStatus(\$enrollmentId, \$status)

Category
- \$id - \$name - \$db
+ create(\$name) + update(\$id, \$name) + delete(\$id) + getById(\$id) + getAll() + getCourses(\$categoryId)

Teacher
+ createCourse(\$title, \$description, \$content, \$categoryId, \$tags = []) + updateCourse(\$courseId, \$title, \$description, \$content, \$categoryId, \$tags = []) + deleteCourse(\$courseId) + getMyCourses() + getCourseEnrollments(\$courseId) + getCourseStatistics(\$courseId) + getMyStatistics()

Course
- \$id - \$title - \$description - \$content - \$teacherId - \$categoryId - \$createdAt - \$updatedAt - \$db
+ create(\$title, \$description, \$content, \$teacherId, \$categoryId) + update(\$id, \$title, \$description, \$content, \$teacherId, \$categoryId) + delete(\$id) + getById(\$id) + getAll() + getByTeacher(\$teacherId) + getByCategory(\$categoryId) + getEnrolledStudents(\$courseId)

Tag
- \$id - \$name - \$db
+ create(\$name) + getById(\$id) + getAll() + update(\$id, \$name) + delete(\$id) + associateWithCourse(\$tagId, \$courseId) + dissociateFromCourse(\$tagId, \$courseId) + getTagsByCourse(\$courseId) + getCoursesByTag(\$tagId)

