**Traceability diagram:**

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| --- | --- | --- | --- |
| **Requirements** | **Packages** | **Class** | **Method** |
| Create Model | ui | RequestManagementApp | RequestManagementApp() |
| model | University | University() |
| Req#1: Register a collaborator from Universidad Icesi | ui | RequestManagementApp | registerCollaborator() |
| model | University | searchCollaborator(id : String) |
| model | Collaborator | getId() |
| model | University | availableCollaborator() |
| model | University | registerCollaborator(intType : int, id : String, fullName : String, email : String, extension : String) |
| model | Collaborator | Collaborator(id : String, fullName : String, email : String, extension : String) |
| model | ImprovementCollaborator | ImprovementCollaborator(id : String, fullName : String, email : String, extension : String) |
| Req#2: Register a department from Universidad Icesi. | ui | RequestManagementApp | registerDepartment() |
| model | University | oneMinCollaborator() |
| model | University | searchDepartment(internalCode : String) |
| model | Department | getInternalCode() |
| model | University | displayCollaborators() |
| Model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | University | intToCollaborator(intResponsibleCollaborator : int) |
| model | University | availableDepartment() |
| model | University | registerDepartment(collaboratorId : String, address : String, name : String, internalCode : String) |
| model | Department | Department(address : String, name : String, internalCode : String, responsibleCollaborator : Collaborator) |
| Req#3: Register a project request. | ui | RequestManagementApp | registerRequest() |
| model | University | oneMinCollaborator() |
| model | University | displayCollaborators() |
| Model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | University | oneMinDepartment() |
| model | University | displayDepartments() |
| model | Department | getName() |
| model | Department | getInternalCode() |
| model | University | isDuplicateRequest(intResponsibleDepartment : int, subject : String) |
| model | University | intToDepartment(intResponsibleDepartment : int) |
| model | Department | isDuplicateRequest(subject : String) |
| model | Department | searchRequest(subject : String) |
| model | Request | getSubject() |
| model | University | registerRequest(subject : String, description : String, intResponsibleDepartment : int, intResposibleCollaborator : int) |
| model | University | intToCollaborator(intResponsibleCollaborator : int) |
| model | Department | registerRequest(subject : String, description : String responsibleCollaborator : Collaborator) |
| model | Request | subject : String, description : String, responsibleCollaborator : Collaborator, responsibleDepartment : Department) |
| model | StatusType | intToStatus(intStatus : int) |
| Req#4: Change the status of a request. | ui | RequestManagementApp | changeRequestStatus() |
| model | University | oneMinDepartment() |
| model | University | oneMinPendingRequest() |
| model | Department | oneMinPendingRequest() |
| model | Request | getStatus() |
| model | StatusType | intToStatus(intStatus:int) |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | displayDepartmentsPendingRequest() |
| model | University | GetDepartmentsPendingRequest() |
| model | Department | getName() |
| model | Department | getInternalCode() |
| model | University | displayPendingRequests(intResponsibleDepartment : int) |
| model | Department | getPendingRequests() |
| model | University | displayStatusTypes() |
| model | Department | displayStatusTypes() |
| model | Request | displayStatusTypes() |
| model | StatusType | getStatusTypes() |
| model | StatusType | getDescription() |
| model | University | changeRequestStatus(intResponsibleDepartment : int, intRequest : int, intRequestType : int) |
| model | Department | changeRequestStatus(intRequest : int, intRequestType : int) |
| model | Request | setStatus(status:StatusType) |
| model | Request | setClassificationDate(classificationDate : Calendar) |
| model | Request | getSubject() |
| Req#5: Create a Knowledge Management project. | ui | RequestManagementApp | changeRequestStatus() |
| model | University | oneMinDepartment() |
| model | University | oneMinPendingRequest() |
| model | Department | oneMinPendingRequest() |
| model | Request | getStatus() |
| model | StatusType | intToStatus(intStatus:int) |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | displayDepartmentsPendingRequest() |
| model | University | GetDepartmentsPendingRequest() |
| model | Department | getName() |
| model | Department | getInternalCode() |
| model | University | displayPendingRequests(intResponsibleDepartment : int) |
| model | Department | getPendingRequests() |
| model | University | displayStatusTypes() |
| model | Department | displayStatusTypes() |
| model | Request | displayStatusTypes() |
| model | StatusType | getStatusTypes() |
| model | StatusType | getDescription() |
| model | University | changeRequestStatus(intResponsibleDepartment : int, intRequest : int, intRequestType : int) |
| model | Department | changeRequestStatus(intRequest : int, intRequestType : int) |
| model | Request | setStatus(status:StatusType) |
| model | Request | setClassificationDate(classificationDate : Calendar) |
| model | Request | getSubject() |
| ui | RequestManagementApp | createProject(responsibleDepartment : String, requestSubject : String) |
| model | University | displayDtiCollaborators() |
| model | University | getImproveCollaborators() |
| model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | University | displayPriorities() |
| model | Project | displayPriorities() |
| model | Priority | getPriorities() |
| model | Priority | getDescription() |
| model | University | displayImpactCommunities() |
| model | ImprovementCollaborator | displayImpactCommunities() |
| model | Knowledge | displayImpactCommunities() |
| model | Community | getCommunityTypes() |
| model | Community | getDescription() |
| model | University | displayKnowledgeTypes() |
| model | ImprovementCollaborator | displayKnowledgeTypes() |
| model | Knowledge | displayKnowledgeTypes() |
| model | KnowledgeType | getKnowledgeTypes() |
| model | KnowledgeType | getDescription() |
| model | University | createProject(name : String, intPriority : int, leaderId : int, responsibleDepartment : String, requestSubject : String, intImpactedCommunity : int, intKnowledgeType : int) |
| model | University | searchDepartment(internalCode:String) |
| model | Department | searchRequest(subject:String) |
| model | ImprovementCollaborator | createProject(name : String, approvedRequest : Request, intPriority : int, intImpactedCommunity : int, intKnowledgeType : int) |
| model | ImprovementCollaborator | generateRandomUniqueCode() |
| model | ImprovementCollaborator | searchProject(Id:String) |
| model | Project | getId() |
| model | Knowledge | Knowledge(name : String, id : String, intPriority : int, leader : ImprovementCollaborator, acceptedRequest : Request, intImpactedCommunity : int, intKnowledgeType : int) |
| model | Project | Project(name : String, intPriority : int, leader : ImprovementCollaborator, approvedRequest : Request) |
| model | Priority | intToPriority(intPriority:int) |
| model | Request | getClassificacionDate() |
| model | Project | calcEstCloseDate(classificacionDate:Calendar, intPriority : int) |
| model | Community | intToCommunity(intImpactedCommunity : int) |
| model | intToKnowledgeType | intToKnowledgeType(intType : int) |
| Req#6: Create a Transformation/Improvement project. | ui | RequestManagementApp | changeRequestStatus() |
| model | University | oneMinDepartment() |
| model | University | oneMinPendingRequest() |
| model | Department | oneMinPendingRequest() |
| model | Request | getStatus() |
| model | StatusType | intToStatus(intStatus:int) |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | displayDepartmentsPendingRequest() |
| model | University | GetDepartmentsPendingRequest() |
| model | Department | getName() |
| model | Department | getInternalCode() |
| model | University | displayPendingRequests(intResponsibleDepartment : int) |
| model | Department | getPendingRequests() |
| model | University | displayStatusTypes() |
| model | Department | displayStatusTypes() |
| model | Request | displayStatusTypes() |
| model | StatusType | getStatusTypes() |
| model | StatusType | getDescription() |
| model | University | changeRequestStatus(intResponsibleDepartment : int, intRequest : int, intRequestType : int) |
| model | Department | changeRequestStatus(intRequest : int, intRequestType : int) |
| model | Request | setStatus(status:StatusType) |
| model | Request | setClassificationDate(classificationDate : Calendar) |
| model | Request | getSubject() |
| ui | RequestManagementApp | createProject(responsibleDepartment : String, requestSubject : String) |
| model | University | displayDtiCollaborators() |
| model | University | getImproveCollaborators() |
| model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | University | displayPriorities() |
| model | Project | displayPriorities() |
| model | Priority | getPriorities() |
| model | Priority | getDescription() |
| model | University | displayImpactCommunities() |
| model | ImprovementCollaborator | displayImpactCommunities() |
| model | Knowledge | displayImpactCommunities() |
| model | Community | getCommunityTypes() |
| model | Community | getDescription() |
| model | University | displayKnowledgeTypes() |
| model | ImprovementCollaborator | displayKnowledgeTypes() |
| model | Knowledge | displayKnowledgeTypes() |
| model | KnowledgeType | getKnowledgeTypes() |
| model | KnowledgeType | getDescription() |
| model | University | createProject(name : String, intPriority : int, leaderId : int, responsibleDepartment : String, requestSubject : String, processCode : String) |
| model | University | searchDepartment(internalCode:String) |
| model | Department | searchRequest(subject:String) |
| model | ImprovementCollaborator | createProject(name : String, approvedRequest : Request, intPriority : int, processCode : String) |
| model | ImprovementCollaborator | generateRandomUniqueCode() |
| model | ImprovementCollaborator | searchProject(Id:String) |
| model | Project | getId() |
| model | Knowledge | Improvement(name : String, id : String, intPriority : int, leader : ImprovementCollaborator, acceptedRequest : Request, processCode : String) |
| model | Project | Project(name : String, intPriority : int, leader : ImprovementCollaborator, approvedRequest : Request) |
| model | Priority | intToPriority(intPriority:int) |
| model | Request | getClassificacionDate() |
| model | Project | calcEstCloseDate(classificacionDate:Calendar, intPriority : int) |
| Req#7: Close a project. | ui | RequestManagementApp | closeProject() |
| model | University | oneMinUnclosedProjects() |
| model | University | getUnclosedProjects() |
| model | University | getAllProjects() |
| model | Project | getEndDate() |
| model | University | displayAllOrUnclosedProjects(intGroup : int) |
| model | University | showProjClassifDate(intProject : int) |
| model | Project | getClassificationDate() |
| model | University | closeProject(intProject : int, closeDate : Calendar) |
| model | University | isEnteredDateLaterThanClassification(intProject : int, enteredDate : Calendar) |
| model | Project | setEndDate(closeDate:Calendar) |
| Req#8: Display the information of the last five projects (based on query date) of each team member in matrix form. | Ui | RequestManagementApp | displayProjectMatrix() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinDateProject(date : Calendar) |
| model | University | getDateProject(date : Calendar) |
| model | Project | getClassificationDate() |
| model | University | displayProjectMatrix(queryDate : Calendar) |
| model | ImprovementCollaborator | getOrganizedDateProjects(date : Calendar) |
| model | Project | getEstimatedCloseDate() |
| model | ImprovementCollaborator | getPriorityValue(priority : Priority) |
| model | Project | getPriorityLevel() |
| model | Project | getLeader() |
| model | Collaborator | getFullName() |
| model | Project | getId() |
| model | Priority | priorityToLetter(priority : Priority) |
| Req#9: Access the detailed information of a project. | ui | RequestManagementApp | displayProjectMatrix() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinDateProject(date : Calendar) |
| model | University | getDateProject(date : Calendar) |
| model | Project | getClassificationDate() |
| model | University | displayProjectMatrix(queryDate : Calendar) |
| model | ImprovementCollaborator | getOrganizedDateProjects(date : Calendar) |
| model | Project | getEstimatedCloseDate() |
| model | ImprovementCollaborator | getPriorityValue(priority : Priority) |
| model | Project | getPriorityLevel() |
| model | Project | getLeader() |
| model | Collaborator | getFullName() |
| model | Project | getId() |
| model | Priority | priorityToLetter(priority : Priority) |
| Ui | RequestManagementApp | accessProjectInfo(id : String, date : calendar) |
| model | University | displayProjectInfo(id: String) |
| model | University | searchProject(id : String) |
| model | Project | toString() |
| model | Priority | getDescription() |
| model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | Request | toString() |
| model | StatusType | getDescription() |
| model | Department | getName() |
| model | Department | getInternalCode() |
| model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | Knowledge | toString() |
| model | Community | getDescription() |
| model | KnowledgeType | getDescription() |
| model | Improvement | toString() |
| Req#10: Review the efficiency of a collaborator from the Department of Transformation and Improvement in a given month. | ui | RequestManagementApp | reviewEfficiencies() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | reviewLeaderEfficiency(intEfficiency : int) |
| model | University | oneMinLeaderWProjects() |
| model | University | getLeaderWProjects() |
| model | University | displayLeadersWProjects() |
| model | ImprovementCollaborator | getFullName() |
| model | ImprovementCollaborator | getId() |
| model | University | reviewLeaderEfficiency(date : Calendar, intLeader : int) |
| model | ImprovementCollaborator | calculateEfficiency(date : Calendar) |
| model | Collaborator | getEndDate() |
| Req#11: Review the efficiency of a determined project. | ui | RequestManagementApp | reviewEfficiencies() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | reviewProjectEfficiency(intEfficiency : int) |
| model | University | oneMinClosedProject() |
| model | University | getClosedProjects() |
| model | Project | getEndDate() |
| model | University | displayAllOrUnclosedOrClosedProjects(intGroup: int) |
| model | Project | getName() |
| model | Project | getId() |
| model | University | calculateEfficiency(intEfficiency : int, intSelection : int) |
| model | EfficiencyCalculable | (abs) calculateEffienciency() |
| model | Project | calculateEfficiency() |
| Req#12: Review the efficiency of a request. | ui | RequestManagementApp | reviewEfficiencies() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | reviewRequestEfficiency(intEfficiency : int) |
| model | University | oneMinClassifiedRequest() |
| model | University | getClassifiedRequests() |
| model | University | getAllRequests() |
| model | Request | getClassificacionDate() |
| model | University | displayClassifiedRequests() |
|  | Request | getSubject() |
|  | Request | getResponsibleDepartment() |
|  | Department | getName() |
|  | Department | getInternalCode() |
| model | University | calculateEfficiency(intEfficiency : int, intSelection : int) |
| model | EfficiencyCalculable | (abs) calculateEffienciency() |
| model | Request | calculateEfficiency() |
| Req#13: Consult the number of projects by type and priority. | ui | RequestManagementApp | generalConsultations() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | consultProjectsTypePriority() |
| model | University | consultProjectsTypePriority() |
| model | Priority | priorityToLetter(priority : Priority) |
| model | Project | getPriorityLevel() |
| Req#14: Consult the number of projects led by every collaborator in the Department of Transformation and Improvement. | ui | RequestManagementApp | generalConsultations() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | consultLedProjects() |
| model | University | consultLedProjects() |
| model | Collaborator | getFullName() |
| model | Collaborator | getId() |
| model | ImprovementCollaborator | countProjects() |
| Req#15: Consult the number of received requests and managed in a given month. | ui | RequestManagementApp | generalConsultations() |
| model | University | oneMinLeader() |
| model | University | getImproveCollaborators() |
| model | University | oneMinProject() |
| model | University | getAllProjects() |
| model | University | getImproveCollaborators() |
| model | ImprovementCollaborator | getLedProjects() |
| model | University | oneMinRequest() |
| model | University | getAllRequests() |
| model | Department | getRequests() |
| ui | RequestManagementApp | consultRequestsInAMonth() |
| model | University | consultRequestsInAMonth(  date : Calendar) |
| model | Request | getRegistrationDate() |
| model | Request | getClassificationDate() |
| Req#16: Generate test objects. | ui | RequestManagementApp | createBaseDtiCollaborators() |
| model | University | createBaseDtiCollaborators() |
| model | University | registerCollaborator(id : String, fullName : String, email : String, extension : String) |
| model | ImprovementCollaborator | ImprovementCollaborator(id : String, fullName : String, email : String, extension : String) |
| ui | RequestManagementApp | GenerateTestObjects() |
| model | University | GenerateTestObjects() |
| model | University | registerDepartment(collaboratorId : String, address : String, name : String, internalCode : String) |
| model | Department | Department(address : String, name : String, internalCode : String, responsibleCollaborator : Collaborator) |
| model | University | registerRequest(subject : String, description : String, intResponsibleDepartment : int, intResposibleCollaborator : int) |
| model | University | intToCollaborator(intResponsibleCollaborator : int) |
| model | Department | registerRequest(subject : String, description : String responsibleCollaborator : Collaborator) |
|  | model | Request | subject : String, description : String, responsibleCollaborator : Collaborator, responsibleDepartment : Department) |
|  | model | StatusType | intToStatus(intStatus : int) |
|  | model | University | changeRequestStatus(intResponsibleDepartment : int, intRequest : int, intRequestType : int) |
|  | model | Department | changeRequestStatus(intRequest : int, intRequestType : int) |
|  | model | Request | setStatus(status:StatusType) |
|  | model | Request | setClassificationDate(classificationDate : Calendar) |
|  | model | Request | getSubject() |
|  | Model | University | createProject(name : String, intPriority : int, leaderId : int, responsibleDepartment : String, requestSubject : String, processCode : String) |
|  | model | ImprovementCollaborator | createProject(name : String, approvedRequest : Request, intPriority : int, processCode : String) |
|  | model | ImprovementCollaborator | generateRandomUniqueCode() |
|  | model | ImprovementCollaborator | searchProject(Id:String) |
|  | model | Project | getId() |
|  | model | Knowledge | Improvement(name : String, id : String, intPriority : int, leader : ImprovementCollaborator, acceptedRequest : Request, processCode : String) |
|  | model | Project | Project(name : String, intPriority : int, leader : ImprovementCollaborator, approvedRequest : Request) |
|  | model | Priority | intToPriority(intPriority:int) |
|  | model | Request | getClassificacionDate() |
|  | model | Project | calcEstCloseDate(classificacionDate:Calendar, intPriority : int) |
|  | model | University | createProject(name : String, intPriority : int, leaderId : int, responsibleDepartment : String, requestSubject : String, intImpactedCommunity : int, intKnowledgeType : int) |
|  | model | ImprovementCollaborator | createProject(name : String, approvedRequest : Request, intPriority : int, intImpactedCommunity : int, intKnowledgeType : int) |
|  | model | ImprovementCollaborator | generateRandomUniqueCode() |
|  | model | ImprovementCollaborator | searchProject(Id:String) |
|  | model | Project | getId() |
|  | model | Knowledge | Knowledge(name : String, id : String, intPriority : int, leader : ImprovementCollaborator, acceptedRequest : Request, intImpactedCommunity : int, intKnowledgeType : int) |
|  | model | Project | Project(name : String, intPriority : int, leader : ImprovementCollaborator, approvedRequest : Request) |
|  | model | Priority | intToPriority(intPriority:int) |
|  | model | Request | getClassificacionDate() |
|  | model | Project | calcEstCloseDate(classificacionDate:Calendar, intPriority : int) |
|  | model | Community | intToCommunity(intImpactedCommunity : int) |
|  | model | intToKnowledgeType | intToKnowledgeType(intType : int) |