**Traceability diagram:**

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| --- | --- | --- | --- |
| **Requirements** | **Packages** | **Class** | **Method** |
| Create Model | ui | Main | createController() |
| model | Controller | Controller() |
| Req#1: register a community | ui | Main | registerCommunity() |
| model | Controller | searchCommunity(name:String) |
| model | Community | getName() |
| model | Controller | registerCommunity(name : String, representantName : String, representantPhone : String, population : int, challenge : Challenge, type : CommunityType) |
| model | Community | Community(name : String, representantName : String, representantPhone : String, population : int, challenge : Challenge, type : CommunityType) |
| Req#2: Register a place | ui | Main | registerPlace() |
| Model | Controller | searchCommunity(communityName: String) |
| Model | Community | getName() |
| Model | Controller | searchPlace(placeName:String) |
| Model | Place | getName() |
| Model | Controller | registerPlace(name : String, area : double, photo : String, resources : double, department : Department, type : PlaceType, caregivingCommunity: Community) |
| Model | Place | Place(name : String, area : double, photo : URL, resources : double, department : Department, type : PlaceType, caregivingCommunity: Community) |
| Req#3: Add a product to a community | ui | Main | addProduct() |
| model | Controller | searchCommunity(communityName: String) |
| model | Community | getName() |
| model | Community | availableProduct() |
| model | Community | searchProduct(productName) |
| model | Product | getName() |
| model | Controller | addProduct(communityName : String, productName : String, naturePercent : double, handcraft : String, type : ProductType) |
| model | Community | addProduct(productName : String, naturePercent : double, handcraft : String, type : ProductType) |
| model | Product | Product(name : String, naturePercent : double, handcraft : String, type : ProductType) |
| Req#4: Eliminate a product from a community | ui | Main | deleteProduct() |
| model | Controller | searchCommunity(communityName:String) |
| model | Community | getName() |
| model | Community | searchProduct(productName: String) |
| model | Product | getName() |
| model | Controller | deleteProduct(communityName:String, productName: String) |
| model | Community | deleteProduct(name:String) |
| Req#5: Add species to a place | ui | Main | addSpecies() |
| model | Controller | searchPlace(placeName: String) |
| model | Place | getName() |
| model | Place | availableSpecies() |
| model | Place | searchSpecies(speciesName: String) |
| model | Species | getName() |
| model | Controller | addSpecies(communityName : String, speciesName : String, photo : String, localPop : int, type : SpeciesType) |
| model | Place | addSpecies(speciesName : String, photo : String, localPop: int, type : SpeciesType) |
| model | Species | Species(name : String, photo : String, localPop: int, type : SpeciesType) |
| Req#6: Modify a species data in a place | ui | Main | modifySpecies() |
| model | Controller | searchPlace(placeName : String) |
| model | Place | getName() |
| model | Place | searchSpecies(oldSpeciesName:String) |
| model | Species | getName() |
| model | Controller | modifySpecies(placeName: String, oldSpeciesName : String, newSpeciesName, photo : Image, localPop : int, type:SpeciesType) |
| model | Place | modifySpecies(oldSpeciesName : String, newSpeciesName, photo : Image, localPop : int, type:SpeciesType) |
| model | Place | searchSpecies(newSpeciesName: String) |
| model | Species | getName() |
| model | Species | setName(newSpeciesName : String) |
| model | Species | setType(type : SpeciesType) |
| model | Species | setPhoto(photo : String) |
| model | Species | getPhoto(photo : String) |
| model | Species | setLocalPop(localPop : int) |
| Req#7: Access a place information. | ui | Main | accessPlace() |
| model | Controller | searchPlace(name: String) |
| model | Place | getName() |
| model | Controller | accessPlace(name:String) |
| model | Place | getName() |
| model | Place | getArea() |
| model | Place | getInaugurationDate() |
| model | Place | getPhoto() |
| model | Place | getResources() |
| model | Place | getType() |
| model | Place | getDeparment() |
| model | Place | getCaringCommunity() |
| model | Community | getName() |
| model | Community | getRepresentantName() |
| model | Community | getRepresentantPhone() |
| model | Community | getPopulation() |
| model | Community | getChallenge() |
| model | Community | getType() |
| Req#8: Access the information of the communities in a department. | ui | Main | accessDeptCommunity() |
| model | Controller | searchDepartment(department : Department) |
| model | Place | getDepartment() |
| model | Controller | accessDeptCommunity(department:Department) |
| model | Place | getCaregivingCommunity() |
| model | Community | getName() |
| model | Place | searchCommunity(name: String) |
| model | Community | getRepresentantName() |
| model | Community | getRepresentantPhone() |
| model | Community | getPopulation() |
| model | Community | getType() |
| model | Community | getChallenge() |
| Req#9: Access the information of communities based on their biggest problematic. | ui | Main | accessChallengeCommunity() |
| model | Controller | searchChallenge(challenge:Challenge) |
| model | Community | getChallenge() |
| model | Controller | accessChallengeCommunity(challenge : Challenge) |
| model | Community | getName() |
| model | Community | getRepresentantName() |
| model | Community | getRepresentantPhone() |
| model | Community | getPopulation() |
| model | Community | getType() |
| Req#10: Display the name of the place with the most species diversity. | ui | Main | mostDiverse() |
| model | Controller | mostDiverse() |
| model | Place | getSpecies() |
| Req#11: Display the three places with the biggest area. | ui | Main | biggest3Area() |
| model | Controller | biggest3Area() |
| model | Place | getArea() |
| model | Place | getName() |