Some of the GRASP design pattern used are:

1. **Controller:** Since the application is using MVC architecture, we have controllers handling all the backend functionality for the application. The controllers used in the application are:
   * UserController
   * GrievanceController
   * AdminController
2. **Polymorphism:** Depending on the type of user logged in (Employee, Grievance Manager or Admin), the report is fetched differently. To implement this, multiple functions to fetch the report are created with the same name. This is an implementation of the ‘Polymorphism’ design pattern.
3. **Low Coupling:** All the modules in the application are separate from each other and change in on of them does not affect the other.

Some of the GOF design pattern used are:

1. **Iterator:** When the Grievance manager wants to view all the grievances in the grievance forum, the data is fetched from the database into a record set and then each of the entries in the record set is displayed using an iterator.
2. **Singleton:** In the system we take advantage of singleton for logging, caching and database connections.
3. **Observer**: Grievance Manager gets notified if there is new grievance created and observes the trend in concerns in particular department/category to work upon them.
4. **Prototype**: We can use the prototype design pattern for getting the grievance details by user, manager and admin by creating the prototype interface which will extend cloneable and concrete class will implement the prototype interface and then client can use the concrete class to instantiate the object once and can call getClone() to reuse the copy of the created object.

**Example – there are different types of users i.e. employee, manager and admin who wants to view the grievance details.** The application wants to instantiate grievance class when required and the view grievance details will be called when it’s needed. Instantiating specific grievance with the view grievance details is time-consuming and costly. Hence, the best approach is to create a clone and assign specific attribute later.