

Project Report

Project Title	Design and develop a website portal using Liferay
Qualification Name (NICF)	Advanced Certificate in Web Development using Platforms
Product Name	Triple – A (AAA) Hosting
Module Name (NICF)	Development using Platforms

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Project title	Design and develop a website portal using Liferay
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Learner declaration
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.
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1. Project Background

Triple-A (AAA) group is a pleasant internet host solutions provider enterprise located in downtown Sri Lanka. It affords all forms of services which consist of domain name registration, Shared website hosting, Reseller website hosting, Cloud website hosting, VPS hosting, dedicated website hosting, Colocation service, etc.

Customers can purchase their services from AAA's department workplaces and wishes to offer private records which include call, email, address, national identity card number, and contact number. Clients' data is a totally important thing for AAA company. To maintain and manage all of their client information, AAA has decided to increase their application with an object-oriented method. Software is required to keep track of their customer's info and services given to clients. The properly-prepared consumer facts can help the employer to pick the ideal recipients for promotions and new services.

2. Project Objective

This project is used for Summative assessment of students in the Module net development using structures of the NICF direction “implemented degree in Software Engineering” This challenge considers the skills required to layout, enforce, check & report a website for a Used car income Portal the use of Spring Framework, MySQL server and test the system via adopting risk-based testing (RBT).

The scope of this research was focused on the application Triple-A-A-A Company. The following scope will assist in achieving the goals,

- Develop the application under “System development”
- Create Documents which explain “System Design”
- Explain briefly the “Program Paradigm and design pattern”
- Evaluate the design patterns and document under “them Evaluation of Design Pattern”
- Provide screen Capture of developed Triple A-A-A Cars and hosted application

3. Tools and Platform

- **Developer Studio (Liferay IDE)** – To implement the project

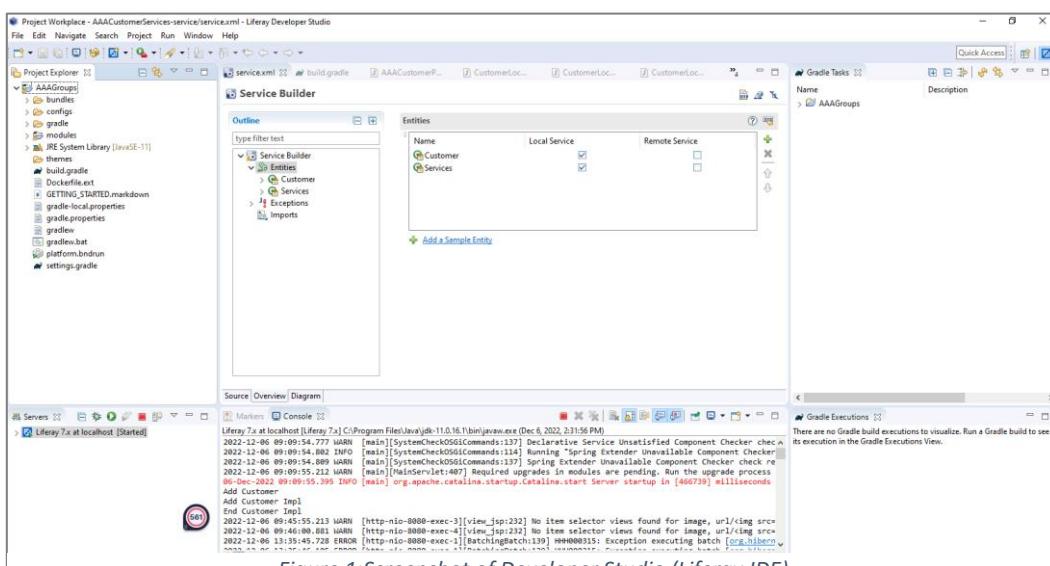


Figure 1: Screenshot of Developer Studio (Liferay IDE)

- **MySQL Workbench** – To create a database

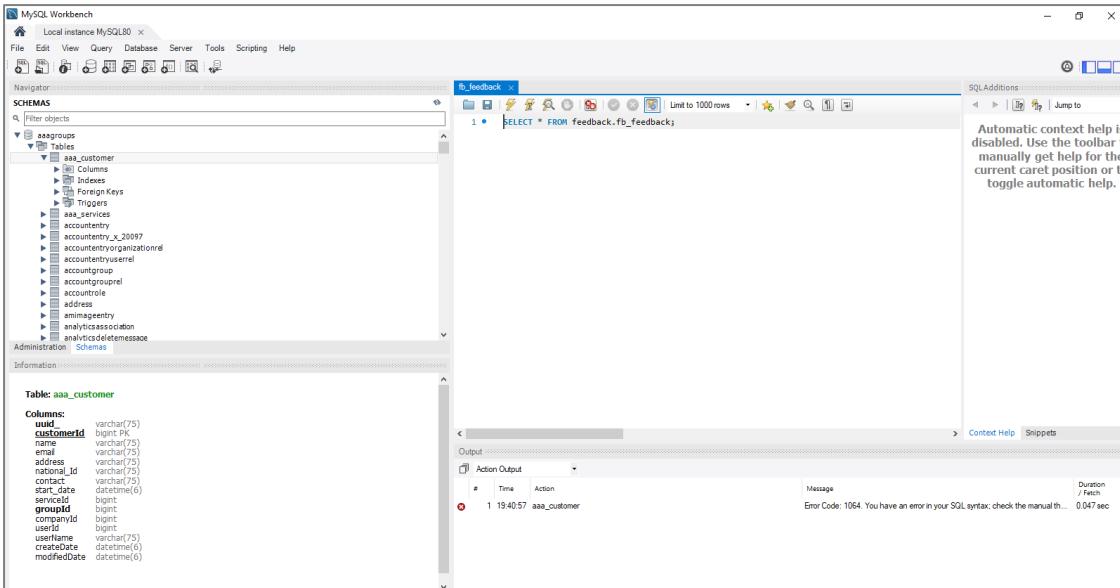


Figure 2: Screenshot of MySQL Workbench

- **creately.com** – To create UML Diagrams

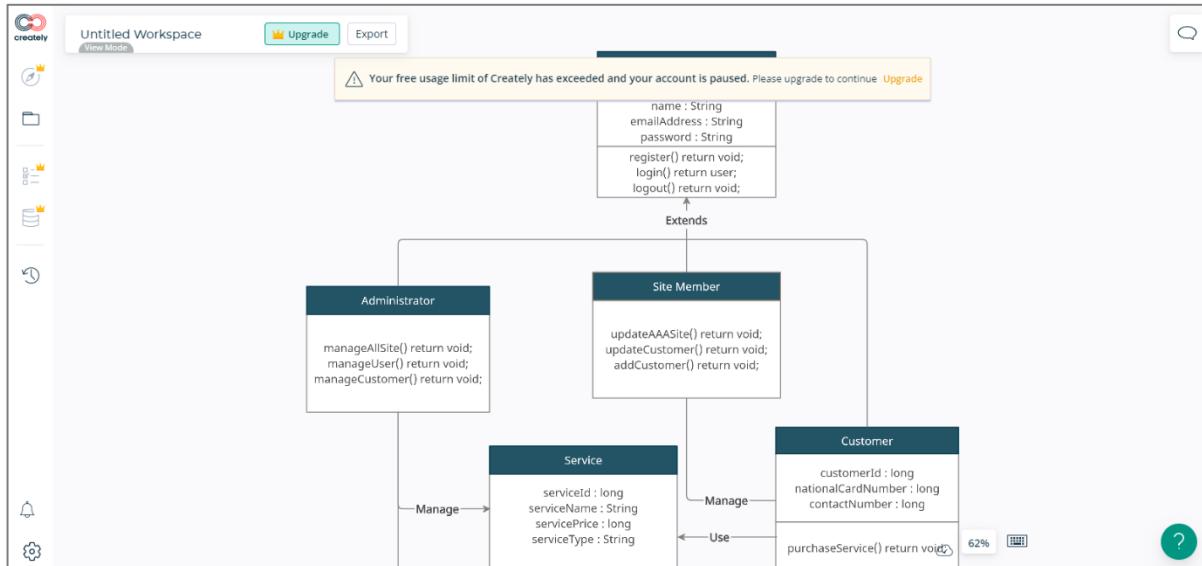


Figure 3: Screenshot of createsly.com

4. Project Requirements Specifications

4.1 Project Scope

There are two types of users in this portal. They are,

1. Administrator
2. Site Member (Staff)

Administrator should be able to perform the following functions in the portal,

1. Manage all of the site contents and pages.
2. Update the theme and layout.
3. Manage the customer data portlet and control permission.
4. Manage all user (Site Member and Customer) roles and permission

Site Member should be able to perform the following functions in the portal,

1. Update AAA company site content.
2. Add and Update the AAA's customer data.

4.2 Functional Requirement

The AAA website consists of the following Key pages,

1. Home Page
2. Registration Page
3. Login Page
4. Our services Page
 - Domain name service page
 - Shared Hosting service page
 - Reseller Hosting service page
 - Cloud Hosting service page
 - VPS Hosting service page
 - Dedicated Hosting service page
 - Colocation service page
5. Contact us Page
6. About us Page
7. Terms and Conditions Page

Task 01

5. Object Oriented Programming paradigm

OOP is a programming paradigm that relies on the concept of classes and objects and Object-oriented programming (OOP) is a computer programming model that puts together a programming plan around data, or objects, instead of capabilities and rationale. An object can be characterized as a data field that has interesting attributes and behaviour.

OOP focuses on developers' desired items to manipulate instead of the rationale expected to manipulate them. This way to deal with writing computer programs is appropriate for programs that are enormous, complex, and effectively refreshed or kept up with. This incorporates programs for manufacturing and design, as well as mobile applications; for instance, OOP can be utilized for manufacturing system simulation software.

The association of an object-oriented program additionally makes the strategy advantageous to cooperative turn of events, where projects are separated into groups. Extra advantages of OOP include code reusability, scalability, and efficiency.

The important features of object-oriented programming are –

- OOP is faster and easier to execute
- Bottom-up approach in program design
- Programs organized around objects, grouped in classes
- Focus on data with methods to operate upon object's data
- Interaction between objects through functions
- Reusability of design through creation of new classes by adding features to existing classes

5.1 Characteristics of the Object-Oriented Programming Paradigm

5.1.1 Class

A class is a user-defined plan or prototype that creates objects. It represents a set of properties or systems which might be not unusual to all items of a type. A class description includes two matters:

1. Attribute or member variables
2. Implementations of behavior or member functions

A class declaration consists of:

1. **Modifiers:** These can be public or default access.
2. **Class name:** Initial letter.
3. **Superclass:** A class can only extend (subclass) one parent.
4. **Interfaces:** A class can implement more than one interface.
5. **Body:** Body surrounded by braces, { }.

```
class classname {
    type instance variable 1;
    type instance variable 2;

    type instance variable n;
    type methodname 1 (parameter list) {
        // body od method
    }
    type methodname 2 (parameter list) {
        // body od method
    }
    type methodnamen (parameter list) {
        // body od method
    }
}
```

Figure 4:Example for OOP Concept - Class

5.1.2 Object

Whether they were written in Java or another language, object are always called instances of a class. They exhibit states and actions. Those objects usually have real-world counterparts, or actual beings. As a result, they are additionally known as global runtime entities. These are independent and include the techniques and attributes that offer the facts its software. Physical matters and logical data can both be objects. It occupies some memory space and consists of addresses. A dog, a chair, a tree, someone, a college, and many others. Are some instances of objects.

We've created a class known as phone, we specify the class name followed through the object name, and we use the key-word new.

```
Public class Phone {  
    int x=10;  
  
    Public static void main (String args []) {  
        Phone Myobj= new Phone ();  
        System.out.println(MyObj.x);  
    }  
}
```

Figure 5:Example for OOP Concept - Object

5.1.3 Methods

A Java method is a collection of statements or a series of lines of code used to carry out an operation or activity. this could be used repeatedly and is used to acquire code reuse. It also gives easy customization and readable code. simplest when we call or invoke a method does it actually run. Java has sorts of methods: consumer-defined and predefined. methods which might be predefined have previously been laid out in Java class libraries. A user-defined method is one which became created by way of the user or the programmer. The requirements can be modified for user-defined methods.

```

public class Maths {
    public static void sum(int a, int b) {
        // Start of sum
        int result = a + b;
        System.out.println("Sum is " + result);
    } End of sum

    public static void main(String [] args) {
        // Here, we call the sum method
        sum(10, 20);
        // Output: Sum is 30
    }
}

```

Figure 6:Example for OOP Concept - Methods

5.1.4 Encapsulation

(Binding code and data together in a single unit)

Encapsulation, often known as OOP Encapsulation, is the process of grouping together methods that operate on data and data itself in object-oriented computer programming (OOP) languages. Encapsulation is widely used in the form of classes in several programming languages. A class is a structure for program code that enables programmers to design objects with variables (data) and behaviours (functions or methods). In computer science, encapsulation can be seen in the form of classes, which are collections of data and methods

```

public class Person {
    private String name; // private = restricted access.

    // Getter
    public String getName() {
        return name;
    }

    // Setter
    public void setName(String newName) {
        this.name = newName;
    }
}

```

Figure 7:Example for OOP Concept - Encapsulation

5.1.5 Polymorphism

(One task is performed differently)

One of the fundamental ideas of object-oriented programming (OOP), polymorphism addresses circumstances where something happens in a variety of ways. It refers to the idea in computer science that you can access objects of many types through the same interface. Each type may offer a unique, autonomous implementation of this interface.

```
class Animal {  
    public void animalSound () {  
        System.out.println("The  
    }  
}  
class cat extends Animal {  
    public void animalSound() {  
        System.out.println("The cat says: wee wee");  
    }  
}  
class Dog extends Animal {  
    public void animalSound() {  
        System.out.println("The dog says: bow wow");  
    }  
}  
class Main {  
    public static void main(String[] args) {  
        Animal myAnimal = new Animal(); // Create a Animal object  
        Animal myCat = new Cat(); // Create a Cat object  
        // Create a Dog object  
        Animal myDog = new Dog();  
        .animalSound();  
        myCat.animalSound();  
        myDog.animalSound();  
    }  
}
```

Figure 8:Example for OOP Concept - Polymorphism

5.1.6 Constructors/ Destructors

In Java, when we make an object of the class it consumes some space in the memory (heap). On the off chance that we don't delete these objects, it stays in the memory and consumes superfluous space that isn't upstanding on the part of programming. To determine this issue, we utilize the destructor. In this section, we will examine the alternate option to the destructor in Java. Likewise, we will likewise figure out how to utilize the finalize () technique as a destructor.

The destructor is something opposite to the constructor. The constructor is utilized to instate objects while the destructor is utilized to delete or destroy the item that delivers the asset involved by the object

```
// Create a Main class
public class Main {
    int x; // Create a class attribute
}
// Create a class constructor for the Main class
public Main() {
    x = 5; // Set the initial value for the class attribute x
}
public static void main(String[] args) {
    Main myObj = new Main(); // Create an object of class Main (This will call the
constructor)
    System.out.println (myObj.x); // Print the value of x
}
// Outputs 5
```

Figure 9:Example for OOP Concept - Constructors

5.1.7 Abstract

(Hiding internal details and showing just the functionality to the user)

Reflection is the most common way of removing or eliminating qualities from something to lessen it to a bunch of fundamental qualities. In object-oriented programming, reflection is one of three focal standards. Through the course of abstraction, a developer conceals everything except the significant information about an item to lessen intricacy and increment proficiency. Similarly, that reflection at times works in

craftsmanship, the item that remains is a portrayal of the first, with undesirable detail discarded. The subsequent item itself can be alluded to as an abstraction, meaning a named element comprised of chosen credits and conduct well defined for a specific use of the starting substance. Abstraction is connected with both encapsulation and data hiding.

```
//abstract parent class
Abstract class animal {
//abstract method
    public abstract void sound ( ) ;
}
Public class lion extends animal {
    Public void sound ( ) {
        System.out.println (" roar " );
    }
    public static void main ( String args [ ] ) {
        animal obj = new lion ( );
        obj. sound ();
    }
}
```

Figure 10:Example for OOP Concept - Abstract

5.1.8 Interface

A totally abstract class is what an interface is. It consists of several abstract techniques (methods without a body). In Java, an interface is created with the interface keyword.

```

// Interface
interface Animal {
    public void animalSound(); // interface method (does not have a body)
    public void sleep(); // interface method (does not have a body)
}
// Pig "implements" the Animal interface
class Pig implements Animal {
    public void animalSound() {
        // The body of animalSound() is provided here
        System.out.println("The pig says: wee wee");
    }
}
public void sleep() {
    // The body of sleep() is provided here
    System.out.println("Zzz");
}
class Main {
    public static void main(String[] args) {
        Pig myPig new Pig(); // Create a Pig object
        myPig.animalSound ();
        myPig.sleep();
    }
}

```

Figure 11: Example for OOP Concept - Interface

5.1.9 Differences between abstract classes and interfaces

Abstract class	Interface
Can have abstract and non-abstract methods	Can have only abstract methods
Does not support multiple inheritances	Support multiple inheritances
Can have final, non-final, and non-static variables	Only static and final variables
Can provide the implementation of interfaces	Cannot provide the implementation of abstract class
The abstract keyword is used to declare abstract class	The interface keyword is used to declare interface

5.2 Class Relationships using UML diagrams

Relationships in UML are used to represent a connection among structural, behavioral, or grouping matters. it is also known as a hyperlink that describes how or extra matters can relate to each other at some point of the execution of a system. sort of UML relationship are Inheritance, realization, Dependency, Aggregation and Composition.

Class Diagram Relationship Type	Notation
Association	
Inheritance	
Realization	
Dependency	
Aggregation	
Composition	

5.2.1 Inheritance

Inheritance is an important concept of the Unified Modelling Language (UML) and is used within the layout of classes and the modelling of class diagrams. a category includes a set of attributes and methods that determine the state and behaviour of its instances

This class diagram contains three subclasses: GoldFish, Carp and Barb one superclass: Fish. Each subclass is connected to the Fish superclass with an inheritance relationship.

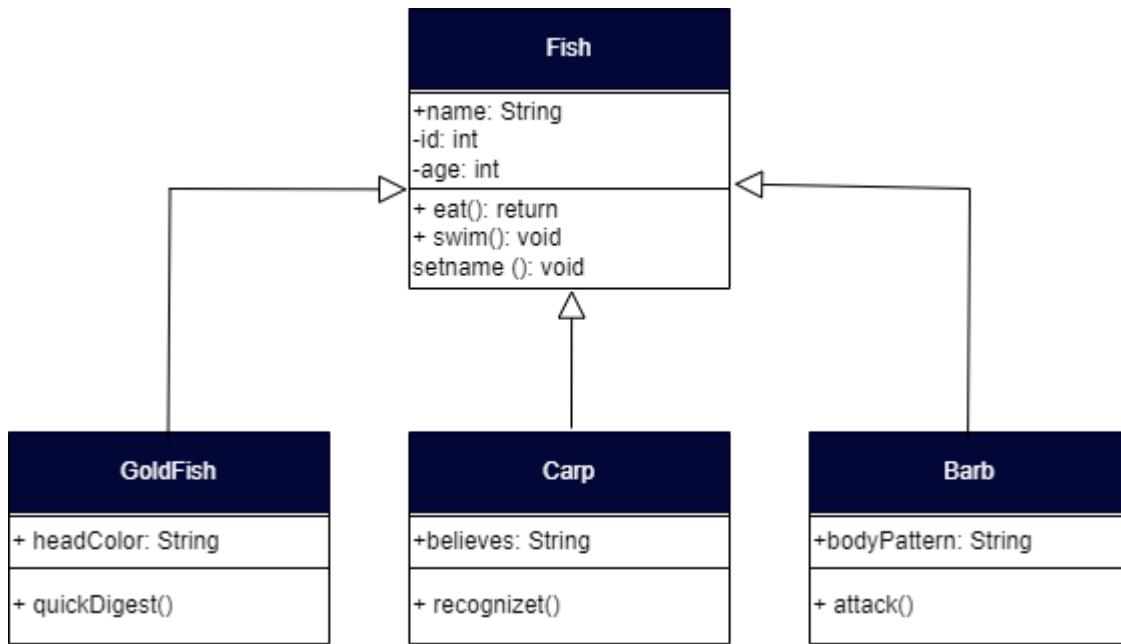


Figure 12: Example for Inheritance

5.2.2 Realization

In UML modelling, a realization relationship is a coupling between model elements, in which one version element (the consumer) realizes the behaviour that the alternative version detail (the supplier) specifies. Numerous clients can understand the conduct of a single provider.



Figure 13: Example for Realization

5.2.3 Dependency

In UML, a dependency relationship is a relationship in which one element, the consumer, uses or relies upon some other element, the supplier. You may use dependency relationships in class diagrams, component

diagrams, deployment diagrams, and use-case diagrams to suggest that exchange to the provider might require a trade to the purchaser

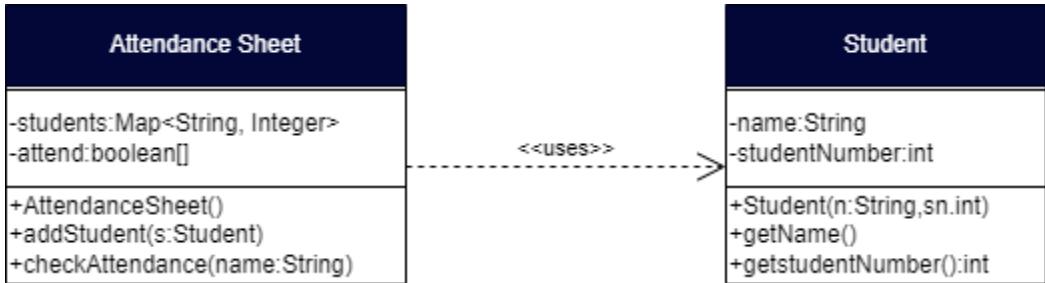


Figure 14:Example for Dependency

5.2.4 Aggregation

In UML models, an aggregation relationship shows a classification as part of or subordinate to some other classifier. An aggregation is a unique sort of association in which objects are assembled or configured collectively to create an extra-complicated object

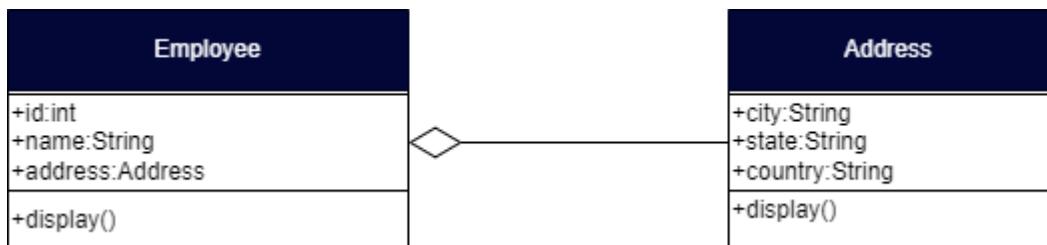


Figure 15:Example for Aggregation

5.2.5 Composition

A composition in the Unified Modelling Language (UML) is a special case of association that describes a relationship between a whole and its existential elements. placed surely, in a composition, a part can by no means be large than the whole.

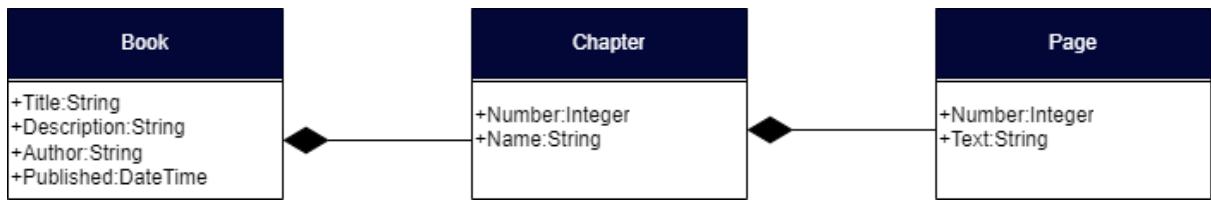


Figure 16: Example for composition

5.3 Class relationships which are used in project scenario.

Class Relationship type	Examin
Composition	Because clients and the service class have a "strong one-to-one" relationship, when the service class changes something, it also affects the clients. Establishing a relationship between objects.
Inheritance	The Admin, Site Member, and Server classes all descend from the User class, a new superclass with shared variables and functions. Code reuse is possible.
Association	The relationship between the admin and the clients as the admin can only manage the servers and site members. Site members can only handle clients, and the admin and site member, as well as site member and client classes are unimodal.

6. Suitable design patterns based on the AAA Portlet

6.1 Creational design pattern

In software engineering, creational design patterns are design patterns that cope with object introduction mechanisms, trying to create objects in a way suitable to the state of affairs. The basic form of item creation could result in design problems or in brought complexity to the design. Creational design patterns are concerned with the manner of making objects. those design patterns are used while a decision ought to be made at the time of instantiation of a class

Factory Method Pattern	Define an interface or abstract class for developing an object however permit the subclasses to decide which class to instantiate
Abstract Factory Pattern	Define an interface or abstract class for creating families of related objects however without specifying their concrete subclasses.
Singleton Pattern	Define a class that has the most effective example and presents a worldwide point of access to it
Prototype Pattern	Cloning of a current object as opposed to creating a new one can also be custom designed according to the requirement.
Builder Pattern	Construct a complex object from simple objects the usage of step-by means of-step approach

6.1.1 Suitable creational design pattern for “AAA Portlet”

For this, the factory method pattern and the constructor design pattern are used. Create an interface or summary class to create objects there, or permit subclasses decide which class to apply. The

factory method pattern may be used to pick the kind of item to create by using sub classing. This promotes unfastened coupling by using doing away with the want to link application-specific classes in code. that is, it creates an object little by little. This is, it is often used within the serialization of a complicated object, in instances where an object cannot be created in a single step.

6.2 Structural design pattern

Structural design pattern is a blueprint of the way one or a kind objects and classes are mixed collectively to form a bigger structure for reaching multiple goals altogether. The patterns in structural designs show how specific portions of a system can be combined collectively in an extensible and bendy way

Adapter Pattern	Allows in converting the interface of a class into any other interface depending at the consumer's requirements
Bridge Pattern	To split the implementation element from the abstraction component in order that the abstraction and implementation of a class can range independently
Composite Pattern	The client is able to perform objects which may additionally or won't represent its hierarchy
Decorator Pattern	Can add or remove object functionality without converting the function or external look of the object
Façade Pattern	Offer a simplified interface to a set of interfaces of a subsystem for hiding its

	complexity of subsystem from the customer
Flyweight Pattern	To reuse comparable forms of existing objects with the aid of storing and developing new objects while similar objects are not observed
Proxy Pattern	Provide a placeholder or a surrogate object to control access to the authentic object

6.2.1 Suitable structural design pattern for “AAA Portlet”

Here adapter pattern and facade pattern are used. While the use of a service with classes that have special interfaces, or extra matters that have been previously incompatible with interfaces add capability that may be reused and interacted with every other at the request of the client. The facade pattern specifies a excessive-level interface that makes the subsystem easy to use. That is, gives an interface to a fixed of interfaces. Util protects the consumer from subsystem additives and loosely connects subsystems and clients.

6.3 Behavioral design pattern

Behavioral design patterns are involved with the interaction and duty of objects. In those design patterns, the interplay between the objects ought to be in this sort of manner that they are able to easily communicate to every different and still need to be loosely coupled. This means the implementation and the client ought to be loosely coupled so as to keep away from hard coding and dependencies.

There are 12 types of behavioral design patterns:

- Chain of Responsibility Pattern
- Command Pattern
- Interpreter Pattern

- Iterator Pattern
- Mediator Pattern
- Memento Pattern
- Observer Pattern
- State Pattern
- Strategy Pattern
- Template Pattern
- Visitor Pattern
- Null Object

6.4 Suitable behavioral design pattern for “AAA Portlet”

✓ Template Pattern

Because we use many classes, most of which percentage exceedingly similar code, we should create a template for a summary class with the majority of the functions predefined, after which create every other class with moderate modification in accordance with the preferred final results.

✓ Observer Pattern

Because the portlet itself contains a one-to-many relationship, as an example one patron should have multiple providers, that's where the observer pattern should come in handy to keep the music of the state of the object within the portlet

7. How the object-orientated paradigm and its key principle are identified in each of the design patterns.

OOP (object orientated Paradigm)

The problem-solving method utilized by the OOP is entirely distinctive. Because it concentrates parts of the machine instead of being solved. In the real world, we can use objects like automobiles and cats are excellent

examples. Due to the fact that OOP is a programming technique or philosophy that divides code into the object and their connections. Layout styles will provide attempted-and-authentic methods of making sorts or objects to deal with a certain problem in a software

7.1 Encapsulation

(Connection between encapsulation and design pattern)

Encapsulation is accomplished whilst each object keeps its state private, internal a class. other items don't have direct get entry to to this state. as a substitute, they could most effective call a list of public features — called methods. So, the object manages its own state via methods — and no different class can touch it unless explicitly allowed. in case you need to speak with the object, you ought to use the methods supplied. however (through default), you could't exchange the state.

Example: There are humans and there may be a cat. They speak with each different. We need to apply encapsulation, so we encapsulate all "cat" logic into a Cat class. it can appear like this:

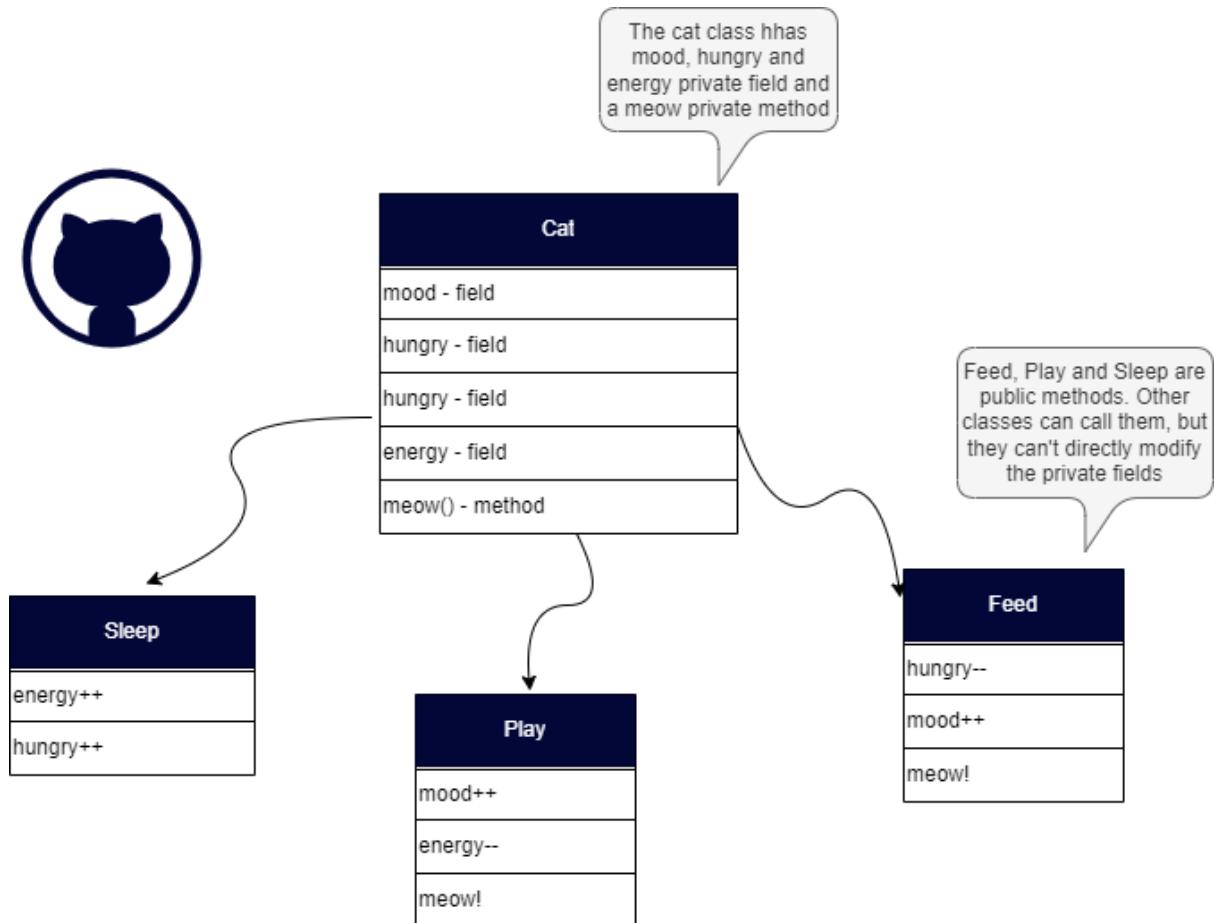


Figure 17: Example for encapsulation

(Here the “state” of the cat is the private variables *mood*, *hungry* and *energy*. It also has a non-public method *meow()*. It could call it on every occasion it wishes, the other classes can’t inform the cat whilst to meow.

What they are able to do is defined within the public methods *sleep()*, *play()* and *feed()*. Every of them modifies the inner state one way or the other and may invoke *meow()*. Accordingly, the binding between the private state and public methods is made.)

7.2 Abstraction

(Connection between abstraction and design pattern)

Abstraction can be notion of as a natural extension of encapsulation. In object-oriented design, programs are regularly extraordinarily big. And separate objects communicate with each different load. So, maintaining a huge codebase like this for years — with changes alongside the way — is difficult. Abstraction is a concept aiming to ease this problem. Applying abstraction means that each object must simplest disclose an excessive-level mechanism for using it.

Example: You interact with your telephone with the aid of using only a few buttons. What's happening below the hood? You don't must recognise — implementation info are hidden. You only want to recognize a brief set of moves.

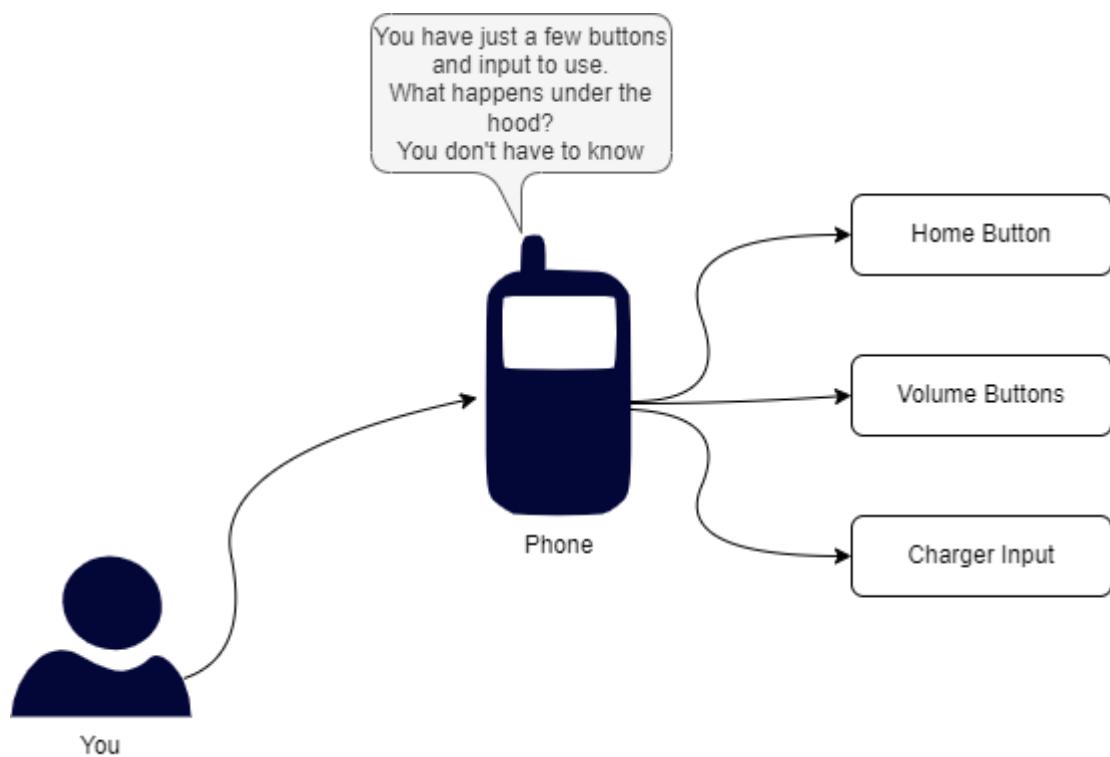


Figure 18: Example for abstraction

7.3 Inheritance

Inheritance saves effort and time due to the fact you do not need to rewrite the main code. Inheritance provides a clean model structure that is straightforward to understand and inheritance leads to lower development and maintenance fees. That allows the code to be reused as many times as wanted. that is, the base class is defined as soon as and as soon as it is compiled, it does not want to be redone. also saves time and effort as there's no need to rewrite the main code.

Example: If our program wants to manipulate public and private teachers, however also different styles of human beings like students, we are able to implement this class hierarchy. This way, every class adds most effective what it desires even as reusing common logic with parent classes.

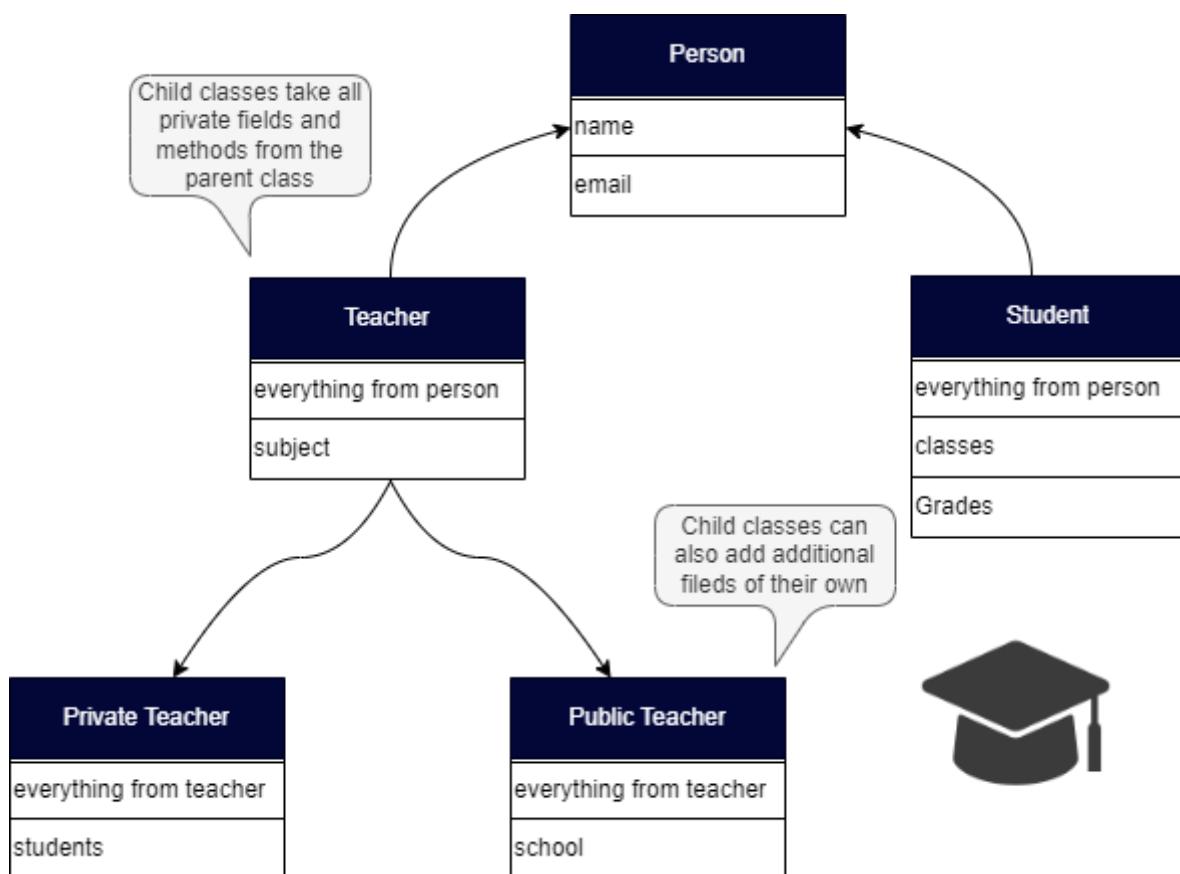
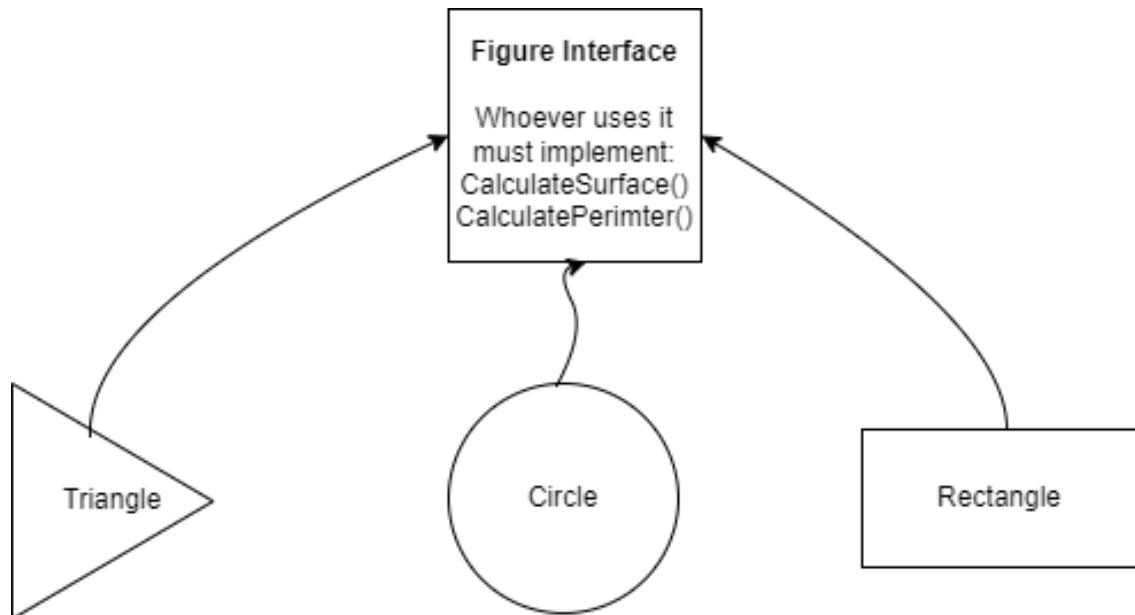


Figure 19: Example for Inheritance

7.4 Polymorphism

Programmer code may be reused via polymorphism and feature a single variable name for more than one data types. also reduces coupling among one of a kind functions. Also, a terrific design pattern has many classes and objects, a number of which might also share the identical call. design patterns offer efficient methods of constructing types and objects to clear up a selected example of a software. A design pattern follows this rule to distinguish among functions or objects with the equal name. Through embracing the principle of polymorphism, a design pattern can include many tasks with the same name however specific goals and parameters.

Example: Take a look at a sketch of geometric figures implementation. They reuse a commonplace interface for calculating surface area and perimeter:



Triangle, Circle and Rectangle inherit the Figure interface or abstract class.

They implement their own version of CalculateSurface() and CalculatePerimeter()
They can be used in a mixed collection of Figures

Figure 20: Example for Polymorphism

Task 02

8. Class Diagrams showing Class-relationships

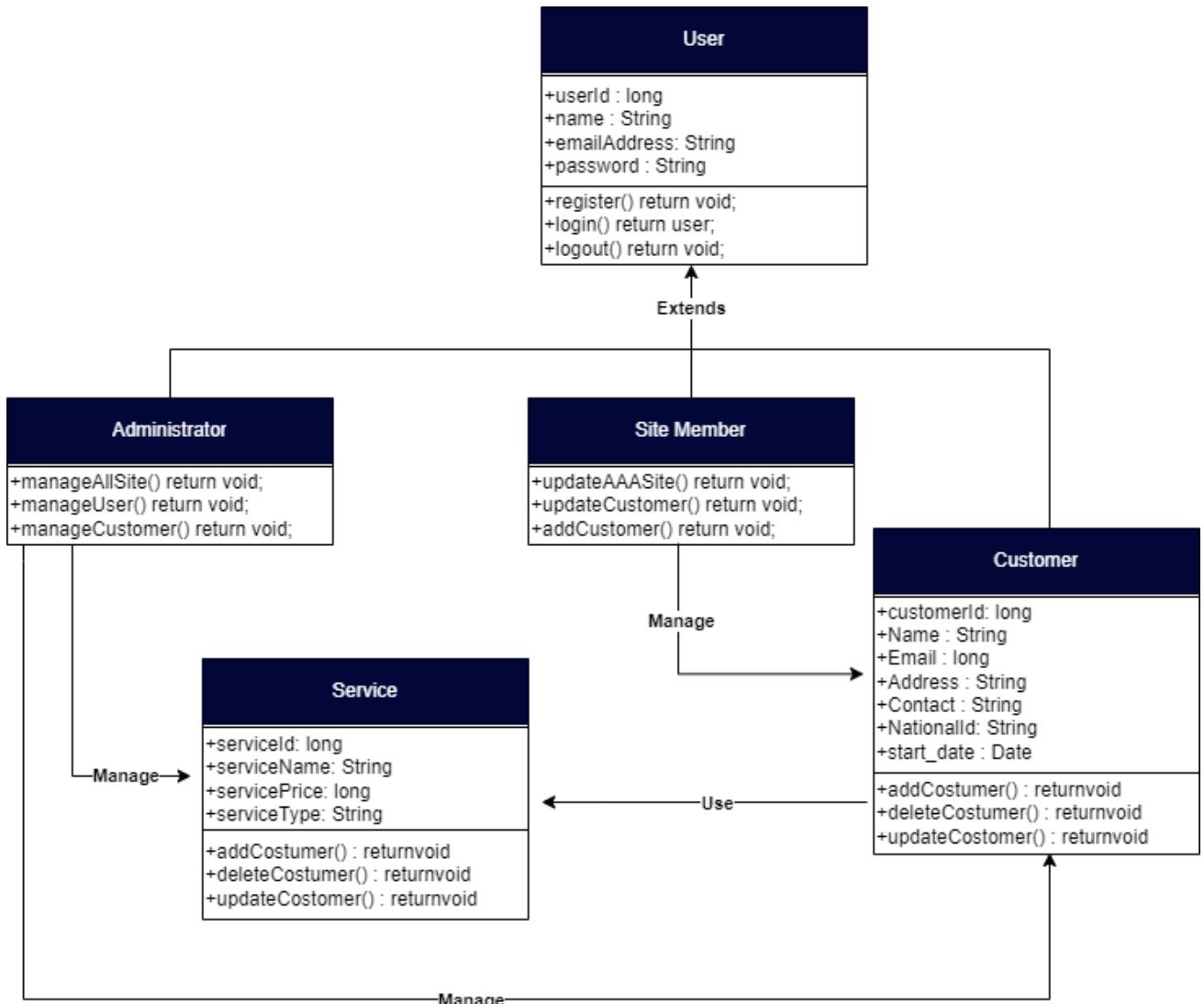


Figure 21:Class Diagram

8.1 Relationship between classes

Users are divided into 2 as admin and site members. Admin can manage the customer and manage the offerings and a member of the website can manipulate the consumer. The relationship between services and clients is composition, i.e. Composition of clients. Customers exist or are created if someone wishes services. Inheritance is used for admin, website member and user classes as inheritance lets us to put in writing applications that

require fewer base and super classes. Inheritance creates a subclass which can use the methods of its superclass without rewriting the code for the ones methods. For customer and services, composition, service, and client are associated with every other. Whenever there may be a customer which means there must be a service. Admin makes use of customer and service association; admin can manage consumer and service.

Class	Attributes	Methods	Explanation
Admin		manageSite() manageAllUser() manageService()	A class named Admin inherits the residences of the user class and the admin can manage the web site in various project record NICF Capstone assignment the usage of Java page 48ways. It has information control skills and internet site access.
Customer	Name Email Address Contact Start_date Service_Name	provideInformation()	A class that gets the attribute from the user. On the grounds that a record of a customer who purchased a service requires more particular records, numerous attributes have been introduced
Site Member		editCustomer() removeCustomer() addCustomer() addContent() editContent() removeContent()	The web page Member class inherits properties from the user class, a designation that influences both content and information approximately the customer.

9. Possible situations where design patterns would be beneficial

9.1 Where should we use Design Patterns

In the analysis and requirement gathering part in the SLDC we need to use design patterns

9.2 Benefit of Design Patterns

Design patterns make it less complicated to regulate software and reuse objects. It is less difficult to reuse and adjust loosely connected objects. Design styles are created the usage of a spread of tiny specialized objects. The system object acting the requested function is given useful responsibilities.

- This feature makes it easier to preserve binary compatibility with later versions.
- It is simple to create and solve future troubles.
- Designers and developers can communicate greater clearly and precisely when the use of design patterns

✓ Façade Pattern

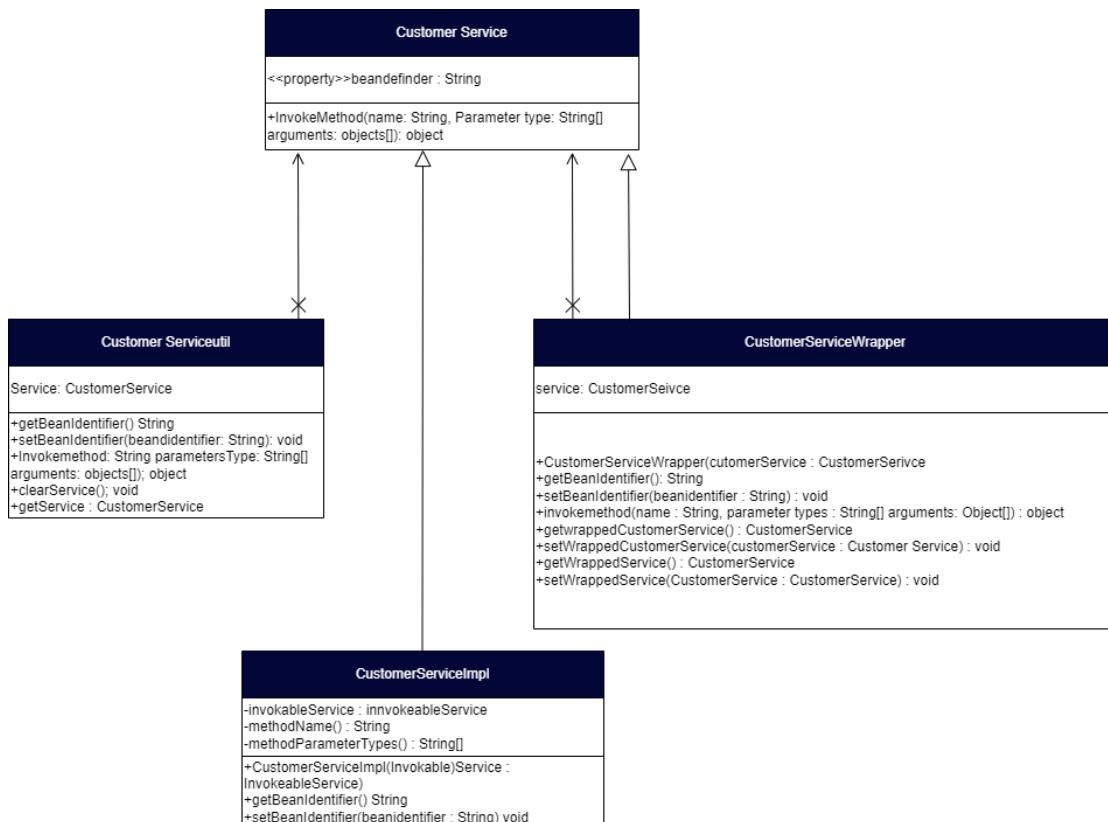


Figure 22:Example for facade pattern

✓ Factory Pattern

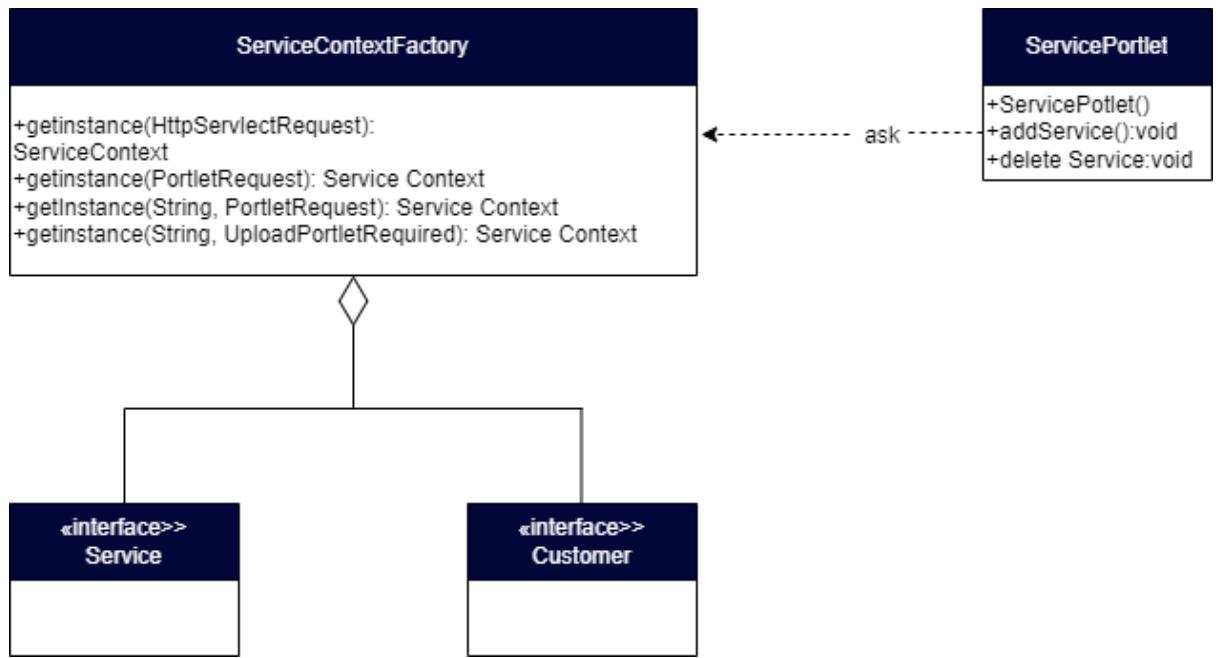


Figure 23::Example for factory pattern

✓ **Template pattern**

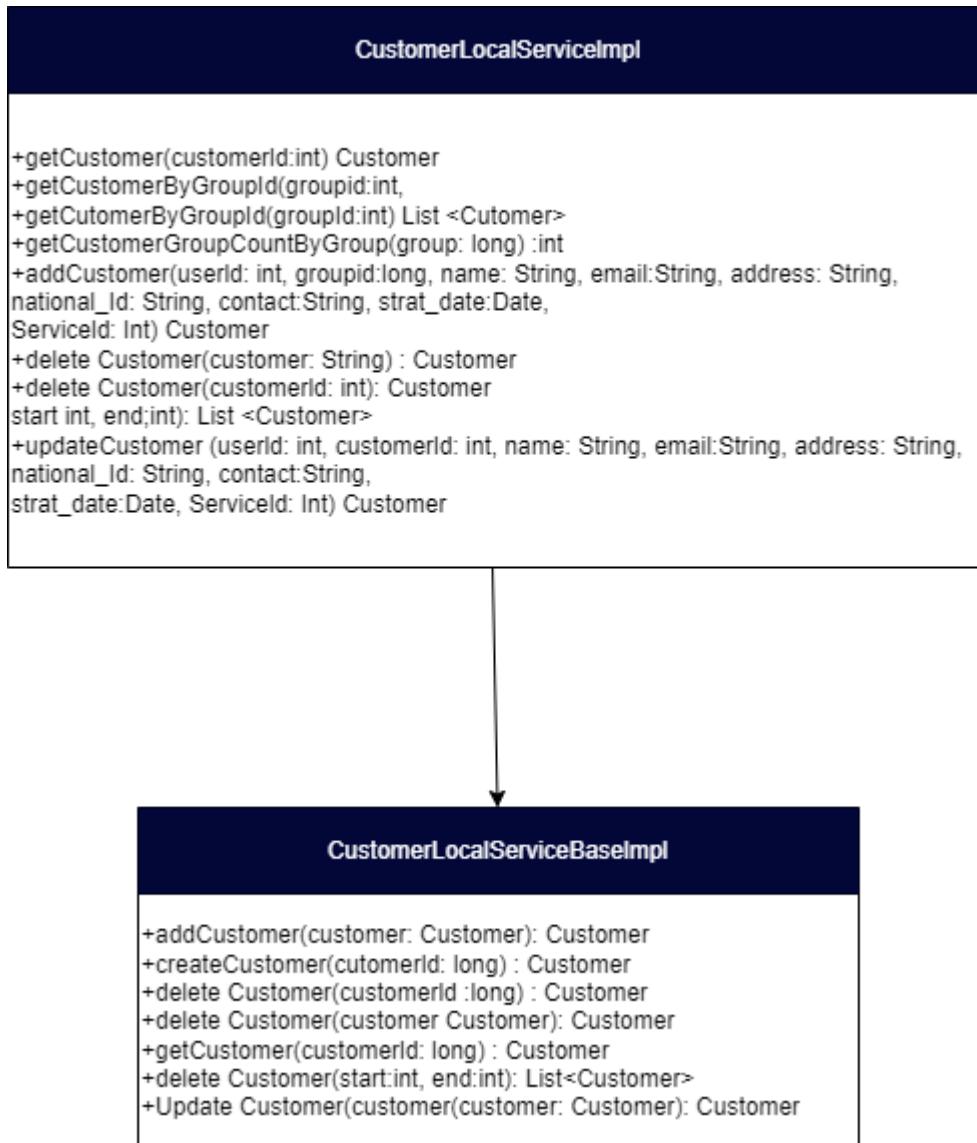


Figure 24::Example for template pattern

10.Observe how the class diagrams are reflected from a given scenario by using the UML tool

The authoring layout pattern inside the service portlet is the manufacturing unit design pattern code. The servicecontext of a service portlet obtains a service class from a servicecontextfactory. Similarly, the customer portlet employs the factory design pattern. A class diagram consists of class names and properties, as well as class hyperlinks and methods. As a result, the class diagram displays the software's actual source code. The prototype

design sample code clones a current item as opposed to creating a new item as the next form of design pattern code for creation.

Customermodelimpl clones the parent class customermodel's clone() function. Customermodelimpl clones the parent class customermodel's clone() function. After analyzing the code, I quick-created a class diagram of the usage of UML tools. Due to structural design patterns. In the source code, the observer design pattern is used. The localserviceimpl class, for starters, extends and overrides the techniques of the hyper-abstract customerlocalservicebaseimpl class. The Observer pattern is the last design pattern I created, as proven in the diagram.

Task 03

11. Set up a project, and build an application based on derived UML class diagrams and design patterns. Provide screenshots as evidence.

- ✓ Create MVC Portlet and Service Builder to manage AAA Customer's data

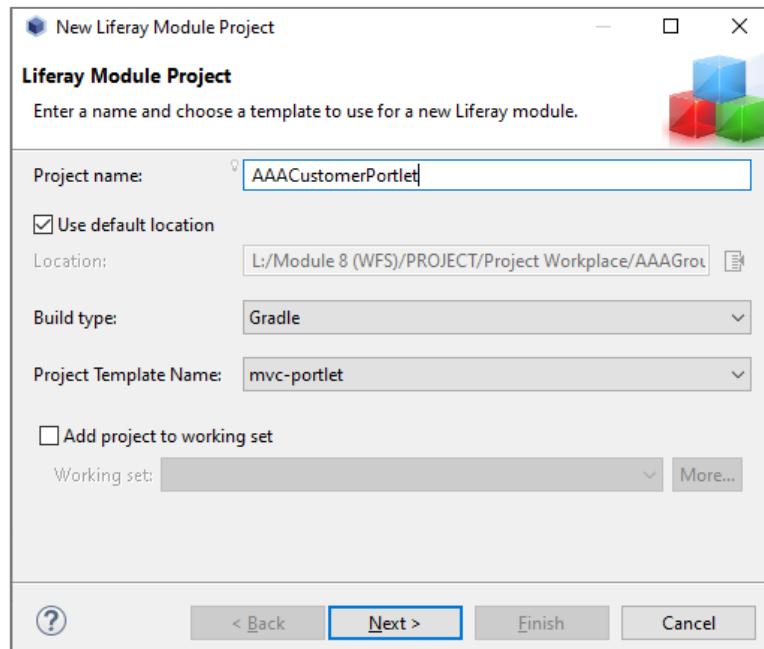


Figure 25: Screenshot of project setup 1

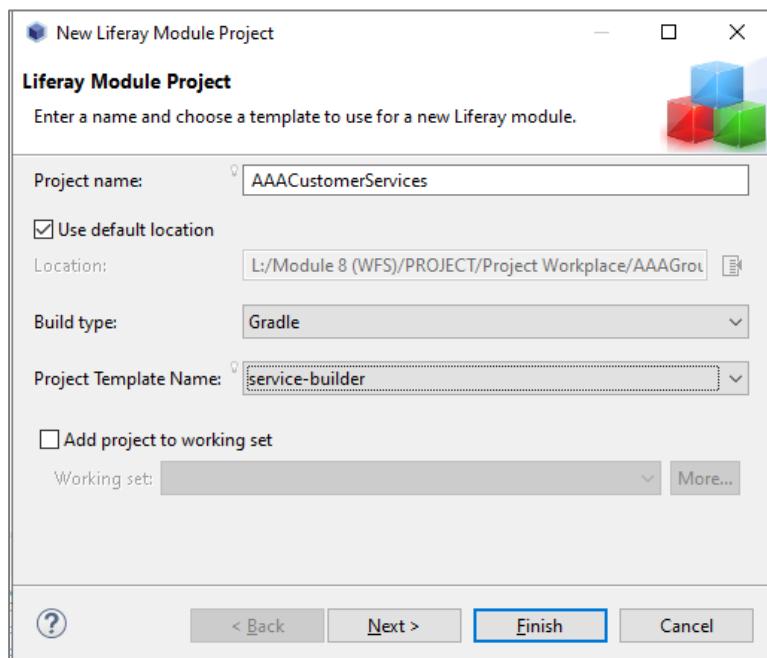


Figure 26: Screenshot of project setup 2

- ✓ Build required entities for “AAA Customer Portlet” by using service builder.

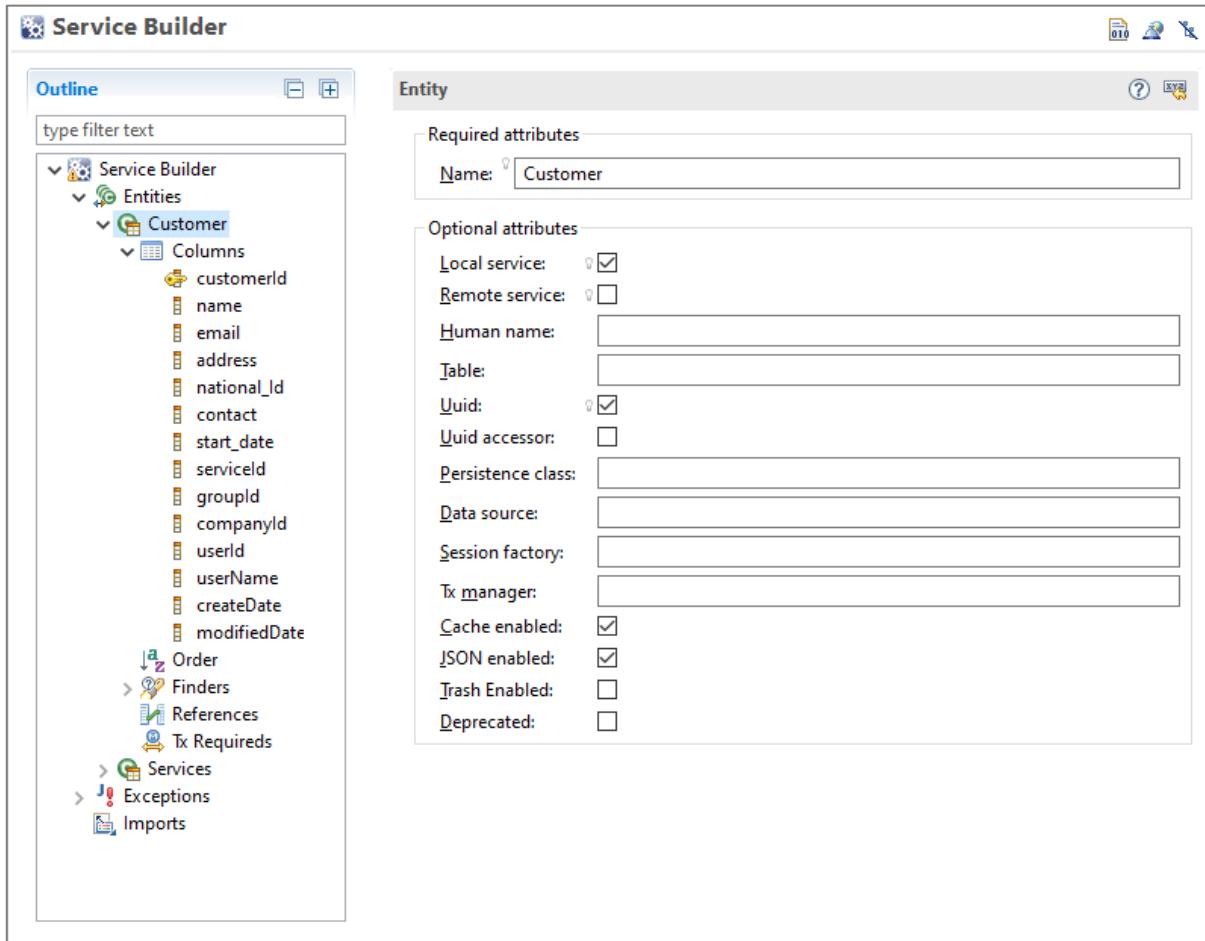


Figure 27: Screenshot of build required entities for AAA Customer Portlet

- Service Layer

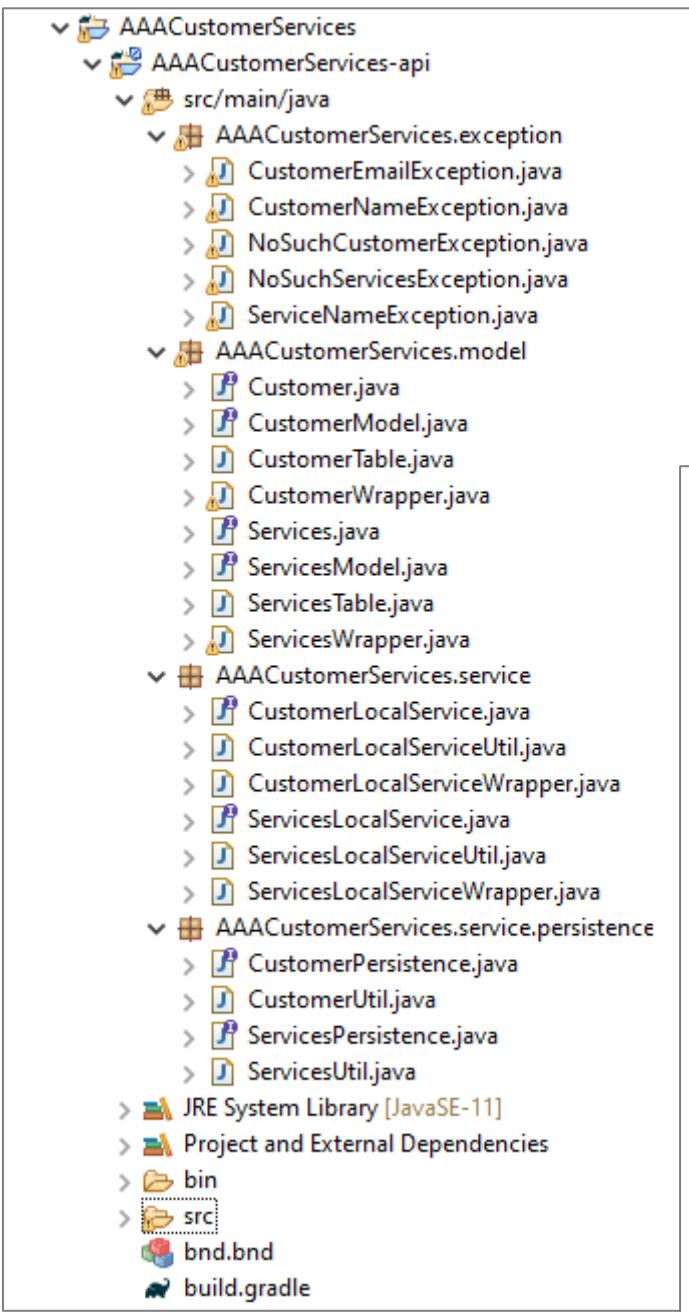


Figure 29: Screenshot of service layer 1

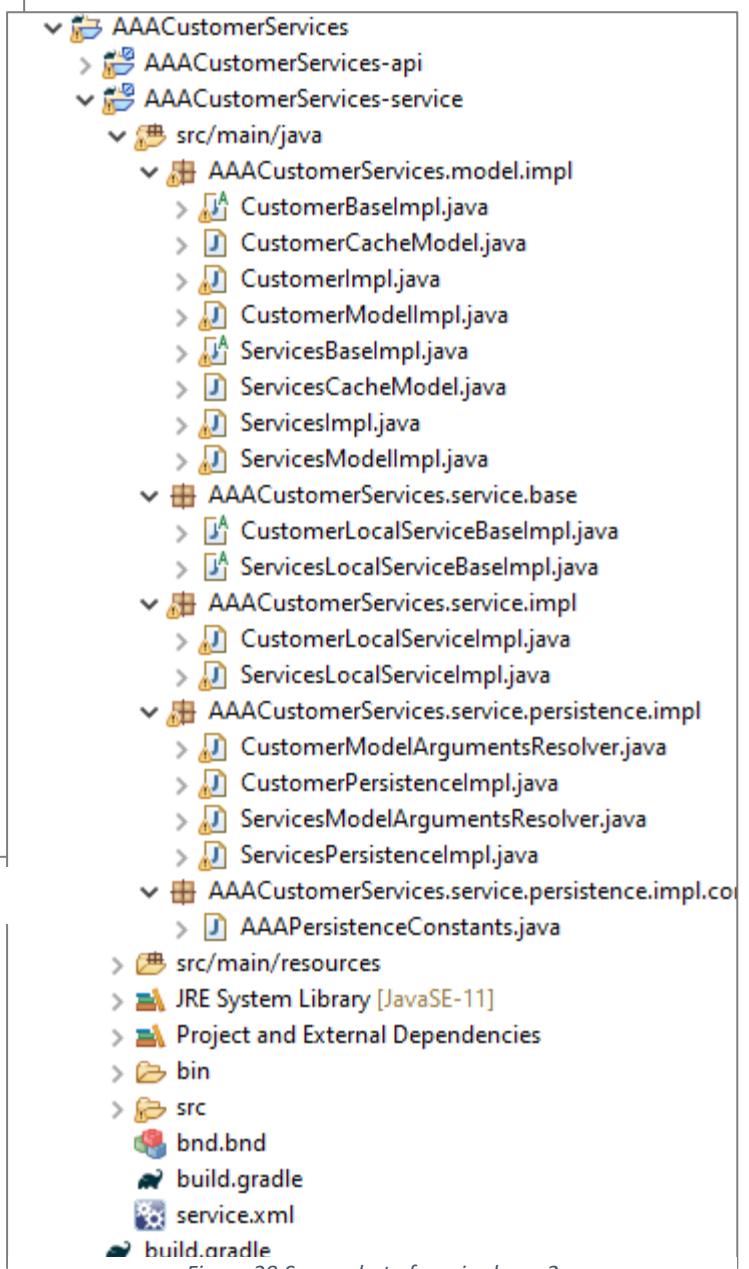


Figure 28: Screenshot of service layer 2

- Service.xml

```

1 <?xml version="1.0"?>
2 <!DOCTYPE service-builder PUBLIC "-//Liferay//DTD Service Builder 7.4.0//EN"
3   "http://www.liferay.com/dtd/liferay-service-builder_7_4_0.dtd">
4 <service-builder dependency-injector="ds" package-path="AAACustomerServices">
5   <namespace>AAAC</namespace>
6
7   <entity name="Customer" local-service="true" uid="true" remote-service="false">
8
9     <column name="customerId" type="long" primary="true"></column>
10    <column name="name" type="String"></column>
11    <column name="email" type="String"></column>
12    <column name="address" type="String"></column>
13    <column name="national_Id" type="String"></column>
14    <column name="contact" type="String"></column>
15    <column name="start_date" type="Date"></column>
16
17    <!-- Relationishp with Service Entity -->
18    <column name="serviceId" type="long"></column>
19
20    <!-- Group instance & Audit fields -->
21    <column name="groupId" type="long"></column>
22    <column name="companyId" type="long"></column>
23    <column name="userId" type="long"></column>
24    <column name="userName" type="String"></column>
25    <column name="createDate" type="Date"></column>
26    <column name="modifiedDate" type="Date"></column>
27    <!-- End Group instance & Audit fields -->
28
29    <order>
30      <order-column name="start_date" order-by="asc"></order-column>
31    </order>
32    <finder name="GroupId" return-type="Collection">
33      <finder-column name="groupId"></finder-column>
34    </finder>
35  </entity>
36
37  <entity name="Services" local-service="true" uid="true" remote-service="false">
38
39    <column name="serviceId" type="long" primary="true"></column>
40    <column name="serviceName" type="String"></column>
41    <column name="serviceDescription" type="String"></column>
42    <column name="servicePrice" type="String"></column>
43
44    <!-- Group instance & Audit fields -->
45    <column name="groupId" type="long"></column>
46    <column name="companyId" type="long"></column>
47    <column name="userId" type="long"></column>
48    <column name="userName" type="String"></column>
49    <column name="createDate" type="Date"></column>
50    <column name="modifiedDate" type="Date"></column>
51    <!-- End Group instance & Audit fields -->
52
53    <order>
54      <order-column name="serviceName" order-by="asc"></order-column>
55    </order>
56
57    <finder name="GroupId" return-type="Collection">
58      <finder-column name="groupId"></finder-column>
59    </finder>
60  </entity>
61
62  <exceptions>
63    <exception>CustomerName</exception>
64    <exception>CustomerEmail</exception>
65    <exception>ServiceName</exception>
66  </exceptions>
67
68 </service-builder>

```

Figure 30:Screenshot of service.xml

- Portlet Controller

```

1 package com.lithna.aaa.portlet;
2
3 import com.lithna.aaa.constants.AAACustomerPortletKeys;
4
5 import java.util.Calendar;
6
7 import com.liferay.portal.kernel.exception.PortalException;
8 import com.liferay.portal.kernel.exception.SystemException;
9 import com.liferay.portal.kernel.log.Log;
10 import com.liferay.portal.kernel.log.LogFactoryUtil;
11 import com.liferay.portal.kernel.portlet.bridges.mvc.MVCPortlet;
12 import com.liferay.portal.kernel.service.ServiceContext;
13 import com.liferay.portal.kernel.service.ServiceContextFactory;
14 import com.liferay.portal.kernel.util.ParamUtil;
15
16 import javax.portlet.ActionRequest;
17 import javax.portlet.ActionResponse;
18 import javax.portlet.Portlet;
19
20 import org.osgi.service.component.annotations.Component;
21 import org.osgi.service.component.annotations.Reference;
22
23 import AAACustomerServices.model.Customer;
24 import AAACustomerServices.model.Services;
25 import AAACustomerServices.service.CustomerLocalService;
26 import AAACustomerServices.service.CustomerLocalServiceUtil;
27 import AAACustomerServices.service.ServicesLocalService;
28 import AAACustomerServices.service.ServicesLocalServiceUtil;
29
30 /**
31 * @author PC
32 */
33 @Component(
34     immediate = true,
35     property = {
36         "com.liferay.portlet.display-category=category.sample",
37         "com.liferay.portlet.header-portlet-css=/css/main.css",
38         "com.liferay.portlet.instanceable=true",
39         "javax.portlet.display-name=AAACustomer",
40         "javax.portlet.init-param.template-path=/",
41         "javax.portlet.init-param.view-template=/view.jsp",
42         "javax.portlet.name=" + AACustomerPortletKeys.AAACUSTOMER,
43         "javax.portlet.resource-bundle=content.Language",
44         "javax.portlet.security-role-ref=power-user,user"
45     },
46     service = Portlet.class
47 )
48 public class AACustomerPortlet extends MVCPortlet {
49
50
51     //CustomerPortlet
52     public void addCustomer(ActionRequest request, ActionResponse response)
53             throws Exception {
54
55         _updateCustomer(request);
56
57         sendRedirect(request, response);
58     }
59
60     public void deleteCustomer(ActionRequest request, ActionResponse response)
61             throws Exception {
62
63         long customerId = ParamUtil.getLong(request, "customerId");
64
65         CustomerLocalServiceUtil.deleteCustomer(customerId);
66
67         sendRedirect(request, response);
68     }
69
70     public void updateCustomer(ActionRequest request, ActionResponse response)
71             throws Exception {
72
73         _updateCustomer(request);
74
75         sendRedirect(request, response);
76     }
77
78     private Customer _updateCustomer(ActionRequest request)
79             throws PortalException, SystemException {
80
81         // Collect all information from JSP
82         long customerId = ParamUtil.getLong(request, "customerId");
83         String name = ParamUtil.getString(request, "name");
84         String email = ParamUtil.getString(request, "email");
85         String address = ParamUtil.getString(request, "address");
86         String national_Id = ParamUtil.getString(request, "national_Id");
87         String contact = ParamUtil.getString(request, "contact");
88         long serviceId = ParamUtil.getLong(request, "serviceId");
89
90
91
92
93
94
95
96
97
98
99

```

```

90     int year = ParamUtil.getInteger(request, "start_dateYear");
91     int month = ParamUtil.getInteger(request, "start_dateMonth");
92     int day = ParamUtil.getInteger(request, "start_dateDay");
93     int hour = ParamUtil.getInteger(request, "start_dateHour");
94     int minute = ParamUtil.getInteger(request, "start_dateMinute");
95     int amPm = ParamUtil.getInteger(request, "start_dateAmPm");
96
97     if (amPm == Calendar.PM) {
98         hour += 12;
99     }
100
101    ServiceContext serviceContext = ServiceContextFactory.getInstance(
102        Customer.class.getName(), request);
103
104    Customer customer = null;
105
106    //Check old customer or new Customer
107    if (customerId <= 0) {
108        System.out.println("Add Customer ");
109        // add Customer Method
110        customer = CustomerLocalServiceUtil.addCustomer(
111            serviceContext.getUserId(), serviceContext.getScopeGroupId(),
112            name, email, address, national_Id, contact, month, day, year, hour,
113            minute, serviceId,
114            serviceContext);
115    }
116    else {
117        System.out.println("Update Customer ");
118        customer = CustomerLocalServiceUtil.getCustomer(customerId);
119        //Call update method
120        customer = CustomerLocalServiceUtil.updateCustomer(
121            serviceContext.getUserId(), customerId, name, email, address,
122            national_Id, contact, month,
123            day, year, hour, minute, serviceId, serviceContext);
124    }
125
126    return customer;
127 }
128
129 //ServicePortlet
130
131 public void addServices(ActionRequest request, ActionResponse response)
132     throws Exception {
133
134     _updateServices(request);
135
136     sendRedirect(request, response);
137 }
138
139 public void deleteServices(ActionRequest request, ActionResponse response)
140     throws Exception {
141
142     long serviceId = ParamUtil.getLong(request, "serviceId");
143
144     ServicesLocalServiceUtil.deleteServices(serviceId);
145
146     sendRedirect(request, response);
147 }
148
149 public void updateServices(ActionRequest request, ActionResponse response)
150     throws Exception {
151
152     _updateServices(request);
153
154     sendRedirect(request, response);
155 }
156
157 private Services _updateServices(ActionRequest request)
158     throws PortalException, SystemException {
159
160     long serviceId = (ParamUtil.getLong(request, "serviceId"));
161     String serviceName = (ParamUtil.getString(request, "serviceName"));
162     String serviceDescription = (ParamUtil.getString(request,
163             "serviceDescription"));
164     String servicePrice = (ParamUtil.getString(request, "servicePrice"));
165
166     ServiceContext serviceContext = ServiceContextFactory.getInstance(
167         Services.class.getName(), request);
168
169     Services services = null;
170
171     if (serviceId <= 0) {
172
173         services = ServicesLocalServiceUtil.addServices(
174             serviceContext.getUserId(), serviceContext.getScopeGroupId(),
175             serviceName, serviceDescription, servicePrice, serviceContext);
176     }
177     else {
178         services = ServicesLocalServiceUtil.getServices(serviceId);
179
180         services = ServicesLocalServiceUtil.updateServices(
181             serviceContext.getUserId(), serviceId, serviceName,
182             serviceDescription, servicePrice,
183             serviceContext);
184     }
185
186     return services;
187 }
188
189 private static Log _log = LogFactoryUtil.getLog(AACustomerPortlet.class);
190
191 @Reference
192 private CustomerLocalService _customerEntryLocalService;
193
194 @Reference
195 private ServicesLocalService _servicesLocalService;

```

Figure 31: Screenshot of Portlet Controller

- **View (Jsp Files)**

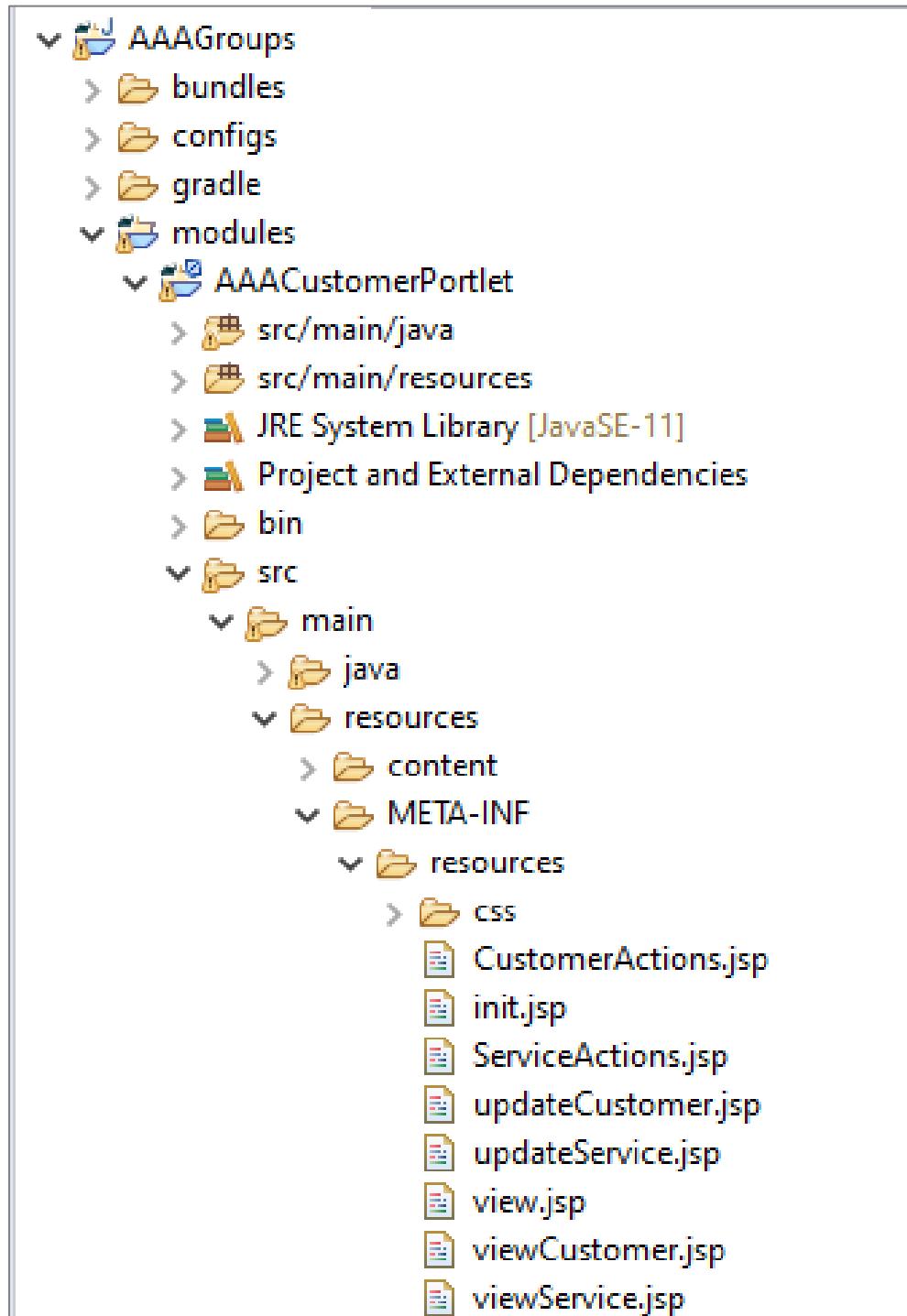


Figure 32: Screenshot of View (JSP files)

- CustomerAction.jsp

```

1 <%@ include file="init.jsp" %>
2
3 <%
4   ResultRow row = (ResultRow)
5   request.getAttribute(WebKeys.SEARCH_CONTAINER_RESULT_ROW);
6   Customer customer = (Customer) row.getObject();
7   long groupId = customer.getGroupId();
8   String name = Customer.class.getName();
9   long customerId = customer.getCustomerId();
10  String redirect = PortalUtil.getCurrentURL(renderRequest);
11 <%
12 <liferay-ui:icon-menu>
13   <portlet:renderURL var="editURL">
14     <portlet:param name="mvcPath" value="/updateCustomer.jsp" />
15     <portlet:param name="customerId" value="<%= String.valueOf(customerId) %>" />
16     <portlet:param name="redirect" value="<%= redirect %>" />
17   </portlet:renderURL>
18
19   <liferay-ui:icon image="edit" url="<%= editURL.toString() %>" />
20
21   <portlet:actionURL name="deleteCustomer" var="deleteURL">
22     <portlet:param name="customerId" value="<%= String.valueOf(customerId) %>" />
23     <portlet:param name="redirect" value="<%= redirect %>" />
24   </portlet:actionURL>
25
26   <liferay-ui:icon image="delete" url="<%= deleteURL.toString() %>" />
27 </liferay-ui:icon-menu>

```

Figure 33:Screenshot of CutomerAction.jsp

- Init.jsp

```

1 <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
2 <%@ taglib uri="http://java.sun.com/portlet_2_0" prefix="portlet" %>
3
4 <%@ taglib uri="http://liferay.com/tld/aui" prefix="aui" %>
5 <%@ taglib uri="http://liferay.com/tld/portlet" prefix="liferay-portlet" %>
6 <%@ taglib uri="http://liferay.com/tld/theme" prefix="liferay-theme" %>
7 <%@ taglib uri="http://liferay.com/tld/ui" prefix="liferay-ui" %>
8 <%@ taglib uri="http://liferay.com/tld/frontend" prefix="liferay-frontend" %>
9 <%@ taglib uri="http://liferay.com/tld/security" prefix="liferay-security" %>
10
11 <%@ page import="com.liferay.portal.kernel.util.GetterUtil" %>
12 <%@ page import="com.liferay.portal.kernel.util.PortalUtil" %>
13 <%@ page import="com.liferay.portal.kernel.util.ParamUtil" %>
14 <%@ page import="com.liferay.portal.kernel.util.HtmlUtil" %>
15 <%@ page import="com.liferay.portal.kernel.util.WebKeys" %>
16 <%@ page import="com.liferay.petra.string.StringPool" %>
17 <%@ page import="com.liferay.portal.kernel.util.Constants" %>
18 <%@ page import="com.liferay.portal.kernel.model.PersistedModel" %>
19 <%@ page import="com.liferay.portal.kernel.dao.search.SearchEntry" %>
20 <%@ page import="com.liferay.portal.kernel.dao.search.ResultRow" %>
21 <%@ page import="AAACustomerServices.model.Customer" %>
22 <%@ page import="AAACustomerServices.service.CustomerLocalServiceUtil" %>
23 <%@ page import="AAACustomerServices.service.ServicesLocalServiceUtil" %>
24 <%@ page import="AAACustomerServices.model.Services" %>
25
26
27 <%@ page import="com.liferay.portal.kernel.dao.search.ResultRow" %><%@
28 page import="com.liferay.portal.kernel.template.TemplateHandler" %><%@
29 page import="com.liferay.portal.kernel.template.TemplateHandlerRegistryUtil" %>
30
31
32
33 <%@ page import="java.text.SimpleDateFormat" %>
34 <%@ page import="java.util.ArrayList" %>
35 <%@ page import="java.util.List" %>

```

Figure 34:Screenshot of Init.jsp

- ServiceAction.jsp

```
1 <%@ include file="init.jsp" %>
2
3 <%
4   ResultRow row = (ResultRow)
5   request.getAttribute(WebKeys.SEARCH_CONTAINER_RESULT_ROW);
6   Services services = (Services) row.getObject();
7   long groupId = services.getGroupId();
8   String name = Services.class.getName();
9   long serviceId = services.getServiceId();
10  String redirect = PortalUtil.getCurrentURL(renderRequest);
11 <%
12 <liferay-ui:icon-menu>
13   <portlet:renderURL var="editURL">
14     <portlet:param name="mvcPath"
15       value="/updateService.jsp" />
16     <portlet:param name="serviceId"
17       value="<%=String.valueOf(serviceId)%>" />
18     <portlet:param name="redirect" value="<%=redirect%>" />
19   </portlet:renderURL>
20
21   <liferay-ui:icon image="edit" url="<%=editURL.toString()%>" />
22
23   <portlet:actionURL name="deleteServices" var="deleteURL">
24     <portlet:param name="serviceId"
25       value="<%=String.valueOf(serviceId)%>" />
26     <portlet:param name="redirect" value="<%=redirect%>" />
27   </portlet:actionURL>
28
29   <liferay-ui:icon image="delete" url="<%=deleteURL.toString()%>" />
30 </liferay-ui:icon-menu>
```

Figure 35: Screenshot of ServiceAction.jsp

- updateCustomer.jsp

```
1 <%@ include file="init.jsp" %>
2
3 <%
4     Customer customer = null;
5     long customerId = ParamUtil.getLong(request, "customerId");
6
7     if (customerId > 0) {
8         customer = CustomerLocalServiceUtil.getCustomer(customerId);
9
10    }
11    List<Services> services =
12        ServicesLocalServiceUtil.getServicesByGroupId(scopeGroupId);
13    String redirect = ParamUtil.getString(request, "redirect");
14 %>
15
16 <aui:model-context bean="<%= customer %>" model="<%= Customer.class %>" />
17 <portlet:renderURL var="viewCustomerURL" />
18 <portlet:actionURL name='<%=customer==null?"addCustomer":"updateCustomer%">' var="editCustomerURL" windowState="normal" />
19
20 <liferay-ui:header
21     backURL="<%=
22     title='<%= (customer != null) ? customer.getName() : "New Customer" %>' />
23
24 <aui:form action="<%=
25     <aui:fieldset>
26         <aui:input name="redirect" type="hidden" value="<%=
27             <aui:input name="customerId" type="hidden" value='<%=
28                 customer == null ? "" :
29                 customer.getCustomerId() %>' />
30
31         <aui:input name="name" />
32
33         <aui:input name="email" />
34
35         <aui:input name="address" />
36
37         <aui:input name="national_Id" />
38
39         <aui:input name="contact" />
40
41         <aui:select label="Services" name="serviceId" showEmptyOption="<%=
42             true %>">
43             <%
44                 for (Services service : services) {
45
46                     <aui:option selected="<%=
47                         customer!=null &&
48                         service.getServiceId() == customer.getServiceId()%>" value="<%=
49                         service.getServiceId()%>"><%=
50                         service.getServiceProviderName() %></aui:option>
51
52             <%
53                 }
54             %>
55
56         </aui:select>
57
58         <aui:input name="start_date" />
59
60     </aui:fieldset>
61
62     <aui:button-row>
63         <aui:button type="submit" />
64
65         <aui:button onClick="<%=
66             viewCustomerURL %>" type="cancel" />
67     </aui:button-row>
68
69 </aui:form>
```

Figure 36: Screenshot of updateCustomer.jsp

- updateService.jsp

```

1 <%@ include file="init.jsp" %>
2
3 <%
4     Services services = null;
5     long serviceId = ParamUtil.getLong(request, "serviceId");
6     if (serviceId > 0) {
7         services = ServicesLocalServiceUtil.getServices(serviceId);
8     }
9     String redirect = ParamUtil.getString(request, "redirect");
10 %>
11
12 <aui:model-context bean="<%= services %>" model="<% Services.class %>" />
13 <portlet:renderURL var="viewServicesURL" />
14 <portlet:actionURL name='<%= services == null ? "addServices" : "updateServices" %>' var="editServicesURL" windowState="normal" />
15
16 <liferay-ui:header
17     backURL="<%= viewServicesURL %>"
18     title='<%= (services != null) ? services.getServiceName() : "New Service" %>' />
19
20
21 <aui:form action="<%= editServicesURL %>" method="POST" name="fm">
22     <aui:fieldset>
23         <aui:input name="redirect" type="hidden" value="<%= redirect %>" />
24
25         <aui:input name="serviceId" type="hidden" value="<% services == null ? "" : services.getServiceId() %>" />
26
27         <aui:input name="serviceName" />
28
29         <aui:input name="serviceDescription" />
30
31         <aui:input name="servicePrice" />
32
33     </aui:fieldset>
34
35     <aui:button-row>
36         <aui:button type="submit" />
37
38         <aui:button onClick="<%= viewServicesURL %>" type="cancel" />
39     </aui:button-row>
40 </aui:form>
```

Figure 37:Screenshot of updateService.jsp

- view.jsp

```

1 <%@ include file="init.jsp" %>
2
3 <liferay-ui:tabs names="Service, Customer" refresh="false" tabsValues="Service, Customer">
4     <liferay-ui:section>
5         <%@ include file="/viewService.jsp" %>
6     </liferay-ui:section>
7     <liferay-ui:section>
8         <%@ include file="/viewCustomer.jsp" %>
9     </liferay-ui:section>
10
11 </liferay-ui:tabs> |
```

Figure 38:Screenshot of view.jsp

- viewCustomer.jsp

```

1 <%@ include file="init.jsp" %>
2
3 <%
4   String redirect = PortalUtil.getCurrentURL(renderRequest);
5 %>
6
7 <aui:button-row>
8   <portlet:renderURL var="addCustomerURL">
9     <portlet:param name="mvcPath" value="/updateCustomer.jsp" />
10    <portlet:param name="redirect" value="<%= redirect %>" />
11  </portlet:renderURL>
12
13  <aui:button onClick="<%= addCustomerURL.toString() %>" value="New Customer" />
14 </aui:button-row>
15
16 <liferay-ui:search-container emptyResultsMessage="customer-empty-results-message"
17 total="<% CustomerLocalServiceUtil.getCustomersCountByGroupId(scopeGroupId) %>">
18   <liferay-ui:search-container-results
19     results="<% CustomerLocalServiceUtil.getCustomersByGroupId(scopeGroupId,
20 searchContainer.getStart(), searchContainer.getEnd()) %>">
21
22   <liferay-ui:search-container-row
23     className="AACustomerServices.model.Customer"
24     keyProperty="customerId"
25     modelVar="customer" escapedModel="<% true %>">
26     <liferay-ui:search-container-column-text
27       name="Name"
28       value="<%= customer.getName() %>">
29     />
30
31     <liferay-ui:search-container-column-text
32       name="Email"
33       property="email">
34     />
35
36     <liferay-ui:search-container-column-text
37       name="Address"
38       property="address">
39     />
40
41     <liferay-ui:search-container-column-text
42       name="National_Id"
43       property="national_Id">
44     />
45
46     <liferay-ui:search-container-column-text
47       name="Contact"
48       property="contact">
49     />
50
51 <%
52   String serviceName = "";
53   try {
54     serviceName = ServicesLocalServiceUtil.getServices(
55       (customer.getServiceId()).getserviceName());
56   } catch (Exception e) {
57   }
58 %>
59
60   <liferay-ui:search-container-column-text
61     name="Service Name"
62     value="<%= serviceName %>">
63   />
64
65 <%
66   SimpleDateFormat sdf = new SimpleDateFormat("MM/dd/yyyy hh:mm a");
67 %>
68
69   <liferay-ui:search-container-column-text
70     name="Date"
71     value="<%= sdf.format(customer.getStart_date()) %>">
72   />
73
74   <liferay-ui:search-container-column-jsp
75     align="right"
76     path="/CustomerActions.jsp"
77   />
78
79 </liferay-ui:search-container-row>
80

```

Figure 39:Screenshot of viewCustomer.jsp

- viewService.jsp

```

1 <%@ include file="init.jsp" %>
2
3 <%
4   String redirect = PortalUtil.getCurrentURL(renderRequest);
5 %>
6
7 <aui:button-row>
8   <portlet:renderURL var="addServicesURL">
9     <portlet:param name="mvcPath"
10       value="/updateService.jsp" />
11     <portlet:param name="redirect" value="<%=redirect%>" />
12   </portlet:renderURL>
13
14   <aui:button onClick="<%=addServicesURL.toString()%>"
15     value="New Service" />
16 </aui:button-row>
17
18 <%
19   String displayStyle =
20     GetterUtil.getString(portletPreferences.getValue("displayStyle", StringPool.BLANK));
21   long displayStyleGroupId =
22     GetterUtil.getLong(portletPreferences.getValue("displayStyleGroupId", null),
23       scopeGroupId);
24   boolean showServiceName_view = GetterUtil
25     .getBoolean(portletPreferences.getValue("showServiceName", StringPool.TRUE));
26 %>
27
28
29 <liferay-ui:search-container total="
30   <%=ServicesLocalServiceUtil.getServicesCountByGroupId(scopeGroupId)%>" >
31   <liferay-ui:search-container-results
32     results="<%_=ServicesLocalServiceUtil.getServicesByGroupId(scopeGroupId,
33       searchContainer.getStart(),
34       searchContainer.getEnd())%>">
35   />
36
37 <liferay-ui:search-container-row
38   className="AAACustomerServices.model.Services" keyProperty="serviceId"
39   modelVar="services" escapedModel="<%=true%>">
40
41   <c:choose>
42     <c:when test="<%_=showServiceName_view == true%>">
43       <liferay-ui:search-container-column-text name="Service Name"
44         value="<%=_services.getServiceName()%>" />
45
46     </c:when>
47   </c:choose>
48
49   <liferay-ui:search-container-column-text name="Service Description"
50     property="serviceDescription" />
51
52
53   <liferay-ui:search-container-column-text name="Service Price"
54     property="servicePrice" />
55
56
57   <liferay-ui:search-container-column-jsp align="right" path="/ServiceActions.jsp"
58 />
59 </liferay-ui:search-container-row>
60
61 <liferay-ui:search-iterator />
62
63 </liferay-ui:search-container>
64

```

Figure 40: Screenshot of viewService.jsp

- ✓ Create the Triple-A (AAA) company webpages
 - Home Page

The screenshot shows the homepage of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, Terms & Conditions, a search bar, and a sign-in link. The main header features the text "Best Web Hosting Services" and "Up to 75% off web hosting plans + free domain, SSL & DDoS protection" with a price of "\$2.50/Per Month!". Below this, a sub-header reads "Keep your website running smoothly with a hosting company that guarantees you good uptime, fast load times and easy setup". A prominent "GET STARTED" button is visible. To the right, there's a stylized illustration of a stack of colorful server blocks. Below the main header, four statistics are displayed: "#1 SMB Hosting Provider on G2", "73 Industry-leading NPS", "570k+ Supercharged Websites", and "24/7 Real-time Expert Support". The main content area has a dark blue background with a large image of a smartphone displaying a website. The text "AAA PROFESSIONAL SERVICES" and "Let the experts build you the site of your dreams." is overlaid. A sub-sub-header "Short on time? We're happy to create a beautiful & professional website for you. Simply get in touch with our experts for a free consultation" is also present. The section "Every step to online success" contains four cards: "Buy a domain", "Add professional email", "Security for you and your customers", and "Boost performance with our apps". The "WHY AAA?" section features three cards: "Your business online", "Privacy and security", and "Customer service". The bottom section highlights "Our Price Guarantee for Lifetime", "We Guarantee 99.9% Network UPTIME!", "Ultra-Fast and Secure Servers", "24/7 Technical Support", "Best Pricing in the Industry", and "Anti-DDoS Protection".

Figure 41: Screenshot of Home page

- About Us

 AAA Group

Home About Us Contact Us Our Services Terms & Conditions

Search...  Sign In



ABOUT US

AAA is the web hosting and cloud partner for small and medium-sized businesses. We are experts in IaaS and offer a portfolio of solutions for the digital space. As the largest hosting company in Europe, we manage more than 8 million customer contracts and host over 12 million domains in our own regional data centers in the US and Europe. We help entrepreneurs taking their first steps online, business owners scaling up, large companies and the partners who help them succeed. Whether building an online presence by securing a domain, building a website, moving back-office processes to the cloud, or orchestrating a container cluster, our comprehensive product range offers a best-in-class app, server or service. Reliability and security are engineered into the core of our products. Our data center network delivers optimal performance and georedundancy. With headquarters in Germany, we rely on a solid mix of state-of-the-art technology, strong privacy policies and airtight data security. Unique to the industry, we offer a dedicated customer service agent to every customer. Your own personal consultant will take the time to get to know you and your business, helping you make the most of your online presence. World-class customer support through a single point of contact is yours at no extra cost. You deserve nothing less than the latest technologies at a great price and in terms that are easy to understand. The best contract is flexible and doesn't require a team of legal experts, so we've tried to make our product offerings and prices as transparent as possible. Helping to make you a success online is our gain — ensuring that you've got time for other more important things is our goal.



OUR HISTORY

AAA was born in 1988, with the main aim of making information technology easy for everyone to understand and use. Committed to delivering powerful, reliable and secure products, AAA engineered its own data center architecture and extensive network, enabling millions of clients to get online, set up their web presence and take advantage of more sophisticated digital services. After initial successes in Europe, AAA launched AAA Inc. in 2003 in Chesterbrook, Pennsylvania. Within a year, AAA had expanded its US-based customer service team and in November 2004 the company ranked among the top ten web hosting providers in the United States. To better serve the market, a large data center of over 40,000 servers was commissioned in Lenexa, Kansas. AAA helped solidify its US market position by completing the takeover of mail.com in 2010. Mass-market hosting success, combined with years of experience building server hardware tailored to cloud applications, was complemented by other strategic acquisitions to create a full-fledged hosting leader. AAA cemented its position as a world-class provider of hosting solutions and became the largest domain registrar in Europe. Robust infrastructure portfolio in hand, AAA then integrated cloud-based digitization applications and tools into its offering, enabling businesses of any size to safely and simply harness the benefits of the cloud.



OUR PROMISES

1.An answer to all your questions

Your personal consultant will help you get the best results out of all AAA products and services, and will assist you with any questions or problems you may have. This is an exclusive service we offer completely free of charge.

2.Everything you need to get started online

We provide everything you need to look professional online, and for reliable communication with your customers and business partners.

3.Tools for your online success

Our online marketing and search engine optimization packages, professional communication, local and online visibility, and the know-how to improve your search rankings are all at your disposal.

4.Future-proof server technology

From classic web hosting with WordPress to highly flexible cloud server solutions, AAA provides the technology professional users need, encouraging the successful development of their companies.

Powered by Liferay

Figure 42:Screenshot of About Us page

✓ Contact Us Page

 AAA Group

Home About Us Contact Us Our Services Terms & Conditions



Support whenever you need it
Less Phone, More Support

We don't want to keep you hanging, waiting for someone to answer the phone. That's why we believe that live chat and other means of internet communication can solve problems more efficiently

Contact Us

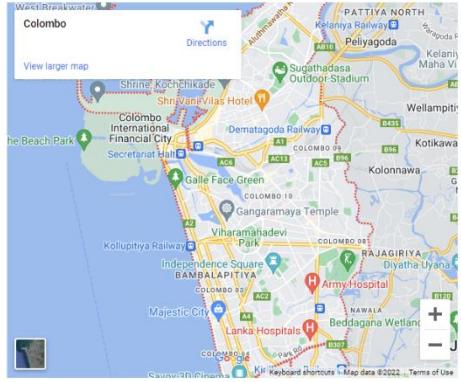
We'd love to hear from you !!!!!!!

Full Name
Enter Your Full Name

Email
Enter Your Email Address

Message

Submit



Contact Details

Email : aaagroup@gmail.com
Head Office : 23/C Mount Lv road, Colombo Sri Lanka
Phone : +94742269976

Office Locations

AAA Groups, 1st Floor Sqaq Lourdes, St Julians STJ3334, Colombo 7
140-H Allama Iqbal Rd P.E.C.H.S Block 2 Karachi, Karachi City Sindh, Bandarawela

[Facebook](#) [Twitter](#) [LinkedIn](#)

Powered by Liferay

Figure 44:Screenshot of Contact Us Page

✓ Our Services

The screenshot shows the 'Our Services' section of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown arrow), and Terms & Conditions. A search bar and a 'Sign In' button are also present. Below the navigation, there are eight service offerings arranged in two rows of four:

- Domain Name**: An illustration of a person standing next to a large computer monitor displaying 'WWW' and a stack of servers. Description: "Your domain helps people find you online and makes a first impression. Find one that represents you perfectly." [Go Somewhere](#)
- Shared Hosting**: An illustration of a tall server tower connected to multiple laptops. Description: "Building your own website just got easier with AAA Shared Hosting! You get all the features, tools, and guidance you need to build and launch truly impressive WordPress websites." [Go Somewhere](#)
- Reseller Hosting**: An illustration of a server tower with multiple smaller boxes labeled 'CLOUD STORAGE ISOMETRIC 2.0'. Description: "Reseller hosting allows you to host multiple clients and allow them to manage their own orders independently. Based on Uptime, Minimum price, Support and more." [Go Somewhere](#)
- Cloud Hosting**: An illustration of a person sitting at a desk with a laptop, with a large cloud icon above it. Description: "Cloud Hosting is best described as a group of servers, which share their CPU, RAM, and space to make one big pool of resources, which is then virtually shared among multiple sites and users." [Go Somewhere](#)

- VPS Hosting**: An illustration of a cluster of server towers. Description: "VPS Hosting puts the power in your hand. Virtual Private Servers, or VPS, give you the cost benefits of shared hosting with the performance and control of Dedicated Hosting." [Go Somewhere](#)
- Dedicated Hosting**: An illustration of three people standing around a single large server tower. Description: "A home for your website. Before you write your first post, share your first photo or sell your first product, your website needs to get online. Hosting is your website's connection to the world." [Go Somewhere](#)
- Colocation Server**: An illustration of two people working on a server cabinet. Description: "Each cabinet supports high-density configurations, which means that you never have to settle for a deployment that is not optimal for your business. We allow you to turn-up or turn-down the amount of computing power you buy." [Go Somewhere](#)

At the bottom of the page, a dark footer bar contains the text "Powered by Liferay".

Figure 46: Screenshot of Our Services Page

✓ Domain Name

The screenshot shows a web page for 'AAA Group' with a navigation bar at the top. Below the navigation is a main section with a dark background and white text. It features a search bar with placeholder 'Search...' and a 'Search Now' button. The text reads 'DOMAIN NAME' and 'Make a Name for Your Website. Literally.' followed by a subtext: 'Your domain helps people find you online and makes a first impression. Find one that represents you perfectly'. Below this is another search bar labeled 'Search...'. The main message 'Ending with .com is just the beginning.' is displayed, along with an illustration of a person working on a computer surrounded by icons related to web development and hosting. A section titled 'Domain Search Tips – 6 Points To Remember' follows, containing six cards with icons and tips: 'Keep It Short', 'Less Is More', 'Include Your Brand Name', 'Domain Availability Search', 'Think Locally', and 'Act Fast'. At the bottom, there's a section titled 'Discover the Most Popular Domains.' with four cards for '.com', '.online', '.store', and '.site' with their respective prices (\$8.88, \$1.79, \$3.55, \$0.77) and 'SELECT' buttons.

AAA Group

Home About Us Contact Us Our Services Terms & Conditions

DOMAIN NAME

Make a Name for Your Website. Literally.

Your domain helps people find you online and makes a first impression. Find one that represents you perfectly

Search... Search Now

Ending with .com is just the beginning.

There are many unique domain options. Here are some of the most popular.

Domain Search Tips – 6 Points To Remember

Keep It Short

Avoid hyphens, numbers, slang, and easily misspelled words in your domains. Complex elements like these will make your website address much harder to reach and remember.

Less Is More

A great domain for your website or online store should include your brand or the target keywords for your niche. A search result with a keyword in the site name will offer better brand recognition and increase your website's traffic.

Include Your Brand Name

While there is no minimum length for domain registration, the best domain names are under three words. Longer website names are harder to read and won't stand out.

Domain Availability Search

You need to perform a domain search to ensure it isn't already registered. Also, it's a good idea to verify if another entity hasn't trademarked it so that you can buy that domain name with confidence.

Think Locally

While many people favor purchasing .com domains, you may want to register a country-specific extension like .co.uk or .de – especially if you target a particular country.

Act Fast

The best website names are quickly taken. Don't miss out on the perfect domain – do a domain name search and register it in minutes.

Discover the Most Popular Domains.

.com

Build trust with this best-known domain

\$8.88

SELECT

.online

It's a great alternative to .com. Broad, generic and universal.

\$1.79

SELECT

.store

Perfect for retail businesses of all sizes across the industries

\$3.55

SELECT

.site

Can be used for any online idea. Unique and professional.

\$0.77

SELECT

Powered by Liferay

Figure 48: Screenshot of Domain Name Page

✓ Shared Hosting

The screenshot shows the AAA Group Shared Hosting landing page. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the right, there's a search bar and a 'Sign In' button. The main header features the text 'SHARED HOSTING' and 'Building your own website just got easier'. Below this, a sub-header reads 'With AAA Shared Hosting you get all the features, tools, and guidance you need to build and launch truly impressive WordPress websites'. A prominent orange 'GET STARTED' button is centered. The next section, titled 'Bring your website to life.', includes a sub-sub-header stating 'Shared hosting is the easiest, most economical way to get your website connected to the Internet so you can start building it.' To the right of this text is an illustration of four laptops connected to a central cloud icon, symbolizing a network. The following section, 'Shared Hosting Features', contains three boxes: 'Free SSL Certificates' (with an SSL icon), '24/7 Live Support' (with a headset icon), and 'WordPress and cPanel' (with a WordPress and cPanel icon). Each feature box includes a brief description. Below these features is a section titled 'Fast, secure, and affordable hosting plans for any budget' featuring four plan options: 'BASIC' (\$2.23/mo), 'PLUS' (\$2.98/mo), 'CHOICE PLUS' (\$4.98/mo), and 'PRO' (\$10.98/mo). Each plan box includes a 'SELECT' button and a detailed description of the included services. At the bottom left, there's a note: 'Powered by Liferay'.

Plan	Price	Save
BASIC	\$2.23/mo	Save 75% with coupon
PLUS	\$2.98/mo	Save 71% with coupon
CHOICE PLUS	\$4.98/mo	Save 69% with coupon
PRO	\$10.98/mo	Save 51% with coupon

Figure 50: Screenshot of Shared Hosting Page

✓ Reseller Hosting

 AAA Group

Search...  Sign In

Home About Us Contact Us Our Services  Terms & Conditions

SELLER HOSTING

The quality you need with all the potential to earn

Can't decide? Let us help you choose the right hosting plan.

GET STARTED



Make \$\$\$ as a Reseller

Sell our hosting, earn some cash. Create your own hosting business and run it any which way you like.

Reseller Hosting Features



All the Essentials

Manage everything from one single dashboard (cPanel). Quickly set up Content Management Systems (WordPress, Joomla, Magento, etc) using the Softaculous script installer. Create your own private nameservers. Get unmetered bandwidth to withstand heavy traffic. Add unlimited domains/subdomains, and protect your clients with built-in firewalls and anti-virus software.



WHM Control

Create and modify your clients' hosting accounts with Web Host Manager (WHM), a handy program that gives you administrative access to the back end of cPanel. So when you create a new account for your client, it's kept separate from yours, allowing you to individually manage as you see fit.



Account Management Tools

Whether you want to set up client invoices or brand the existing cPanel logo with a customized one, our full suite of tools helps make the most out of your business. Take advantage of the WHMCS billing platform, white-label marketing tools, the SSL reseller program, and much more.



State-of-the-Art Technology

Deliver fast, reliable, and secure hosting to your clients, thanks to our Juniper/CISCO network. Here we run special high-powered reseller servers such as Dell PowerEdge with 56 core Xeon CPUs, 256GB+ RAM, and RAID 6 Pure SSD.

Reseller Hosting Plans

NEBULA
\$19.8/mo
Save 50% with coupon

SELECT
Renews at \$19.88/month
(60 GB disk space, 600 GB bandwidth, Unlimited websites, Free SSL certificate)

GALAXY EXPERT
\$39.8/mo
Save 50% with coupon

SELECT
Renews at \$39.88/month
(90 GB disk space, 900 GB bandwidth, Unlimited websites, Free SSL certificate)

UNIVERSE PRO
\$58.8/mo
Save 50% with coupon

SELECT
Renews at \$58.88/month
(140 GB disk space, 1400 GB bandwidth, Unlimited websites, Free SSL certificate)

Powered by Liferay

Figure 51:Screenshot of Reseller Hosting page

✓ Cloud Hosting

The screenshot shows the homepage of the AAA Group website, specifically the cloud hosting section. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the right of the nav bar are a search bar, a magnifying glass icon, and a 'Sign In' button.

The main header features the text 'CLOUD HOSTING' and 'Unleash the Power of Managed Cloud Hosting'. Below this, a sub-header reads: 'Save time & money with simple and reliable cloud hosting trusted by 80,000+ agencies, developers, and businesses that demand high performance from their websites!'. A prominent 'GET STARTED' button is located below the sub-header.

A section titled 'Discover Possibilities, Not Hosting Worries' includes a sub-sub-header: 'Cloudways removes the complexity of cloud hosting and lets you focus on what matters most: your business'. To the right of this text is a 3D-style illustration of a person standing next to a laptop connected to a cloud icon.

The 'Cloud Hosting Features' section contains three boxes:

- Safe Environment**: Shows a blue hard hat icon. Description: Data centers are reinforced with thick concrete walls, 24/7 surveillance, and multiple security layers, making cloud hosting one of the most secure platforms to host your business-critical data.
- Automated Backups**: Shows a blue tape drive icon. Description: No need to separately copy files to new folders. Let automated program do the work for you. Backups update right when you make changes to original files.
- Uptime Guarantee**: Shows a blue rocket icon. Description: What good is a service that cannot guarantee quality? Cloud services come with an uptime assurance of three nines (99.9+%). With downtime as little as an hour in one year, your website runs like an engine does after lubrication.

The 'Configure. Order. Deploy.' section features three pricing plans:

- CLOUD STARTUP**: \$7.20/mo. Save 25% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 1GB, Processor 1 Core, Storage 25GB, Bandwidth 1TB)
- CLOUD PROFESSIONAL**: \$14.23/mo. Save 22% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 2GB, Processor 1 Core, Storage 50GB, Bandwidth 2TB)
- CLOUD ENTERPRISES**: \$27.11/mo. Save 45% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 4GB, Processor 2 Core, Storage 80GB, Bandwidth 4TB)

At the bottom left, it says 'Powered by Liferay'.

Figure 52: Screenshot of Cloud Hosting page

✓ VPS Hosting

 AAA Group

Search...  Sign In

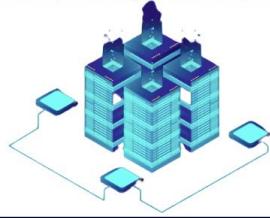
Home About Us Contact Us Our Services  Terms & Conditions

VPS HOSTING

VPS hosting that puts the power in your hands.

Can't decide? Let us help you choose the right hosting plan.

GET STARTED



Choose the right plan for your big plans.

Whether you're building one high performance site or an army of them, our plans flex to your needs.

VPS Hosting Features



Completely Customizable

No matter your level of tech-savviness, your VPS comes customized. Choose your Operating System (Ubuntu, CentOS or Debian), gain root access to your server, and decide if you want a control panel (cPanel) installed.



Powerful VPS Security

Thanks to our state-of-the-art hardware, software firewalls, and internal security package, your virtual hosting environment remains in safe hands. For further peace of mind, enjoy routine server backups.



Incredibly Fast

Pure Solid State Drive (SSD) means you're looking at 20X faster storage over traditional Hard Disk Drives (HDD), which are preferred by VPS competitors. This results in significant improvements to your website's performance, speed and loading times.



24/7 Live Support

If you've got questions, want to discuss your custom VPS options or upgrade your level of server VPS management, we're here for you—round the clock.

Control and flexibility when your business needs it

STANDARD
Get started with your own virtual server

\$19.8/mo
Save 50% with coupon

SELECT

You pay \$82.56 — renews at \$82.56/year
(1 2 Cores, 30 GB SSD Storage, 2 GB RAM, 1 TB Bandwidth, 1 IP Address, cPanel Accounts - 5, cPanel/WHM)

ENHANCED
More storage means more room to play

\$29.95/mo
Save 52% with coupon

SELECT

You pay \$154.56 — renews at \$154.56/year
(2 Cores, 60 GB SSD Storage, 4 GB RAM, 2 TB Bandwidth, 2 IP Addresses, cPanel Accounts - 30, cPanel/WHM)

ULTIMATE
The perfect pairing of power and resources

\$59.99/mo
Save 58% with coupon

SELECT

You pay \$298.56 — renews at \$298.56/year
(4 Cores, 120 GB SSD Storage, 8 GB RAM, 3 TB Bandwidth, 2 IP Addresses, cPanel Accounts - 50, cPanel/WHM)

Powered by Liferay

Figure 53:Screenshot of VPS Hosting page

✓ Dedicated Hosting

The screenshot shows the dedicated hosting section of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. A search bar and a sign-in link are also present. The main header features the text "DEDICATED HOSTING" and "A dedicated headquarters for your online empire." Below this, a sub-header says "Can't decide? Let us help you choose the right hosting plan." A large "GET STARTED" button is prominently displayed. The central message "Choose the plan that matches your needs." is followed by the subtext "Whichever you choose, with dedicated hosting it's all yours. No sharing, no competition, no limits." To the right, there's an illustration of two people interacting with a server tower and a city skyline. The "Dedicated Hosting Features" section lists four options: "Free Migration" (with a circular icon showing two arrows), "Free SSL Certificates" (with a circular icon of a server), "Airtight Security" (with a circular icon of a padlock), and "Optimized Network" (with a circular icon of a lightning bolt). Each feature has a brief description below it. At the bottom, a section titled "Simply select your preferred type of management during the purchase phase." offers three plan options: "STANDARD" (\$89.90/mo), "ENHANCED" (\$79.99/mo), and "PREMIUM" (\$119.9/mo). Each plan includes a "SELECT" button and a detailed description of its specifications. The footer of the page is dark with the text "Powered by Liferay".

Figure 54: Screenshot of Dedicated Hosting Page

✓ Colocation Server

The screenshot shows the homepage of the AAA Group website, specifically the Colocation Server Hosting section. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the far right of the nav bar are a search bar and a 'Sign In' button.

The main header features the text 'COLOCATION SERVER HOSTING' and a large call-to-action: 'Protect, power, and connect your infrastructure, globally'. Below this, a sub-headline reads: 'Maximize availability, minimize risk, and reduce costs with IT colocation services in our state-of-the-art facilities. You get reliability, performance, and security, without the risk and overhead of building and maintaining your own data center'. A prominent 'GET STARTED' button is located below the headline.

On the left side of the main content area, there's an illustration of a person working at a desk connected to a server rack. To the right, the heading 'Colocation Server Hosting Solutions' is displayed, followed by the sub-instruction: 'Start ordering your rack space in any available data center and have full control over your hardware.'

The central part of the page is divided into three sections, each representing a different colocation plan:

- 10U COLOCATION PLANS**: Priced at \$399/mo. Includes a 'SELECT' button and a note: '(Rack Space: 10U, 17.50" Height, Power: 5 Amps, 120V AC, Bandwidth: 25Mbps, Network: GigE Port, 24/7 Support & Reboots: Yes, Free Setup: Yes)'. A note also says 'Save 50% with coupon'.
- 21U COLOCATION PLANS**: Priced at \$699/mo. Includes a 'SELECT' button and a note: '(Rack Space: 21U, 36.75" Height, Power: 20 Amps, 120V AC, Bandwidth: 50Mbps, Network: Mbps on GigE Port, 24/7 Support & Reboots: Yes, Free Setup)'. A note says 'Save 24% with coupon'.
- 42U COLOCATION PLANS**: Priced at \$999/mo. Includes a 'SELECT' button and a note: '(Rack Space: 42U, 73.50" Height, Power: 20 Amps, 120V AC, Bandwidth: 1100Mbps, Network: GigE Port, 24/7 Support & Reboots: Yes)'. A note says 'Save 15% with coupon'.

At the bottom of the page, a dark footer bar contains the text 'Powered by Liferay'.

Figure 55: Screenshot of Colocation Server Hosting Page

✓ **Manage Service & Customer**

- **Service**

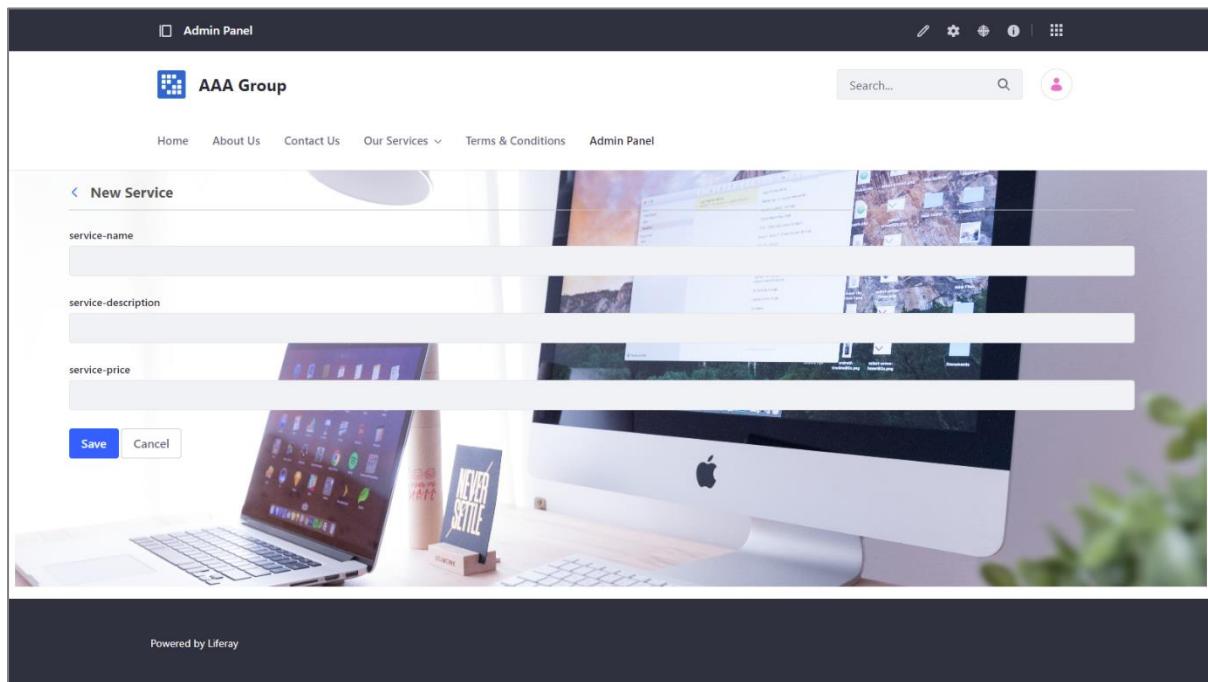


Figure 56:Screenshot of Service 1

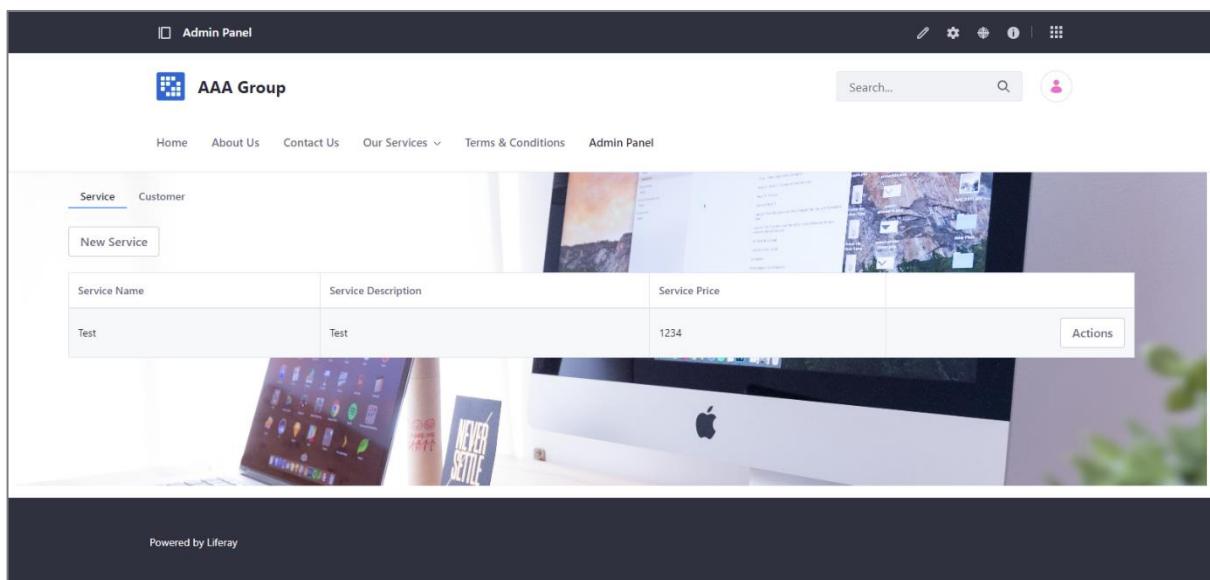


Figure 57::Screenshot of Service 2

- **Customer**

New Customer

Name	test
Email	test@gmail.com
Address	test
national_id	123456789012
Contact	1234567890
Services	Test
start_date	12/06/2022 01:42 PM

Save **Cancel**

Powered by Liferay

Figure 59:Screenshot of Customer 1

Customer

Name	Email	Address	National_Id	Contact	Service Name	Date	Actions
test	test@gmail.com	test	123456789012	1234567890	Test	12/06/2022 01:42 PM	Edit Delete
test1	test1@gmail.com	test1	123456789013	1234567897	Test	12/06/2022 01:42 PM	Edit Delete

Powered by Liferay

Figure 58:Screenshot of Customer 2

✓ Terms & Conditions

The screenshot shows a website header for 'AAA Group' with a search bar and a sign-in link. Below the header, a navigation menu includes 'Home', 'About Us', 'Contact Us', 'Our Services', and 'Terms & Conditions'. The main content area has a dark blue background with white text. It features a title 'AAA HOSTING TERMS & CONDITIONS' and several sections: 'Payments', 'Client Terms', 'Termination & Non-Payment', 'Refund Policy', 'Subscriber's Responsibilities', and 'Governing Law & Arbitration'. Each section contains detailed legal text. At the bottom of the page, there is a dark footer bar with the text 'Powered by Liferay'.

Figure 60: Screenshot of terms & conditions

12. Screen capture of logging in with three different users (Administrator, Site Member) showing Permission for Customer and Service Portlet.

✓ Administrator

The screenshot shows the 'About Us' page of the 'AAA Group' website. On the left, there is a sidebar with navigation links: Home, Page Tree, Design, Site Builder, Content & Data, Categorization, Recycle Bin, People, Configuration, and Publishing. The main content area features a large blue banner with two people interacting with a central robot-like character. Below the banner, the 'ABOUT US' section contains a detailed paragraph about AAA's history and services, mentioning its establishment in 1988, expansion into Europe and the US, and various acquisitions. To the right of the text is a 3D illustration of a data center with server racks and a person working at a desk. The bottom of the page has a footer with the text 'Powered by Liferay'.

Figure 61: Screenshot of Administrator Login

✓ Customer

The screenshot shows a web browser window with the AAA Group website. The top navigation bar includes links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. A search bar and a user profile icon are also present. A sidebar on the right is titled 'SHAMI SHAMI' and lists options such as My Sites, My Profile, My Dashboard, Notifications, Shared Content, My Submissions, My Workflow Tasks, Account Settings, My Connected Applications, and My Organizations. A 'Sign Out' button is at the bottom of the sidebar. The main content area features a large blue header image with two people interacting with a central digital character. Below this is a section titled 'ABOUT US' with descriptive text about the company's history and services. Another section, 'OUR HISTORY', contains text about the company's origins and growth. To the right of these sections is a 3D illustration of a server tower and a person working at a desk. Further down is a section titled 'OUR PROMISES' with four numbered points: 1. An answer to all your questions, 2. Everything you need to get started online, 3. Tools for your online success, and 4. Future-proof server technology. At the bottom left of the main content area, there is a small note: 'Powered by Liferay'.

Figure 62: Screenshot of Customer Login

✓ Site Member

AAA Group

About Us

AAA Group

Home About Us Contact Us Our Services Terms & Conditions Service/Customer

Search...  

ABOUT US

AAA is the web hosting and cloud partner for small and medium-sized businesses. We are experts in IaaS and offer a portfolio of solutions for the digital space. As the largest hosting company in Europe, we manage more than 8 million customer contracts and host over 12 million domains in our own regional data centers in the US and Europe. We help entrepreneurs taking their first steps online, business owners scaling up, large companies and the partners who help them succeed. Whether building an online presence by securing a domain, building a website, moving back-office processes to the cloud, or orchestrating a container cluster, our comprehensive product range offers a best-in-class app, server or service. Reliability and security are engineered into the core of our products. Our data center network delivers optimal performance and georedundancy. With headquarters in Germany, we rely on a solid mix of state-of-the-art technology, strong privacy policies and airtight data security. Unique to the industry, we offer a dedicated customer service agent to every customer. Your own personal consultant will take the time to get to know you and your business, helping you make the most of your online presence. World-class customer support through a single point of contact is yours at no extra cost. You deserve nothing less than the latest technologies at a great price and in terms that are easy to understand. The best contract is flexible and doesn't require a team of legal experts, so we've tried to make our product offerings and prices as transparent as possible. Helping to make you a success online is our gain — ensuring that you've got time for other more important things is our goal.

OUR HISTORY

AAA was born in 1988, with the main aim of making information technology easy for everyone to understand and use. Committed to delivering powerful, reliable and secure products, AAA engineered its own data center architecture and extensive network, enabling millions of clients to get online, set up their web presence and take advantage of more sophisticated digital services. After initial successes in Europe, AAA launched AAA Inc. in 2003 in Chesterbrook, Pennsylvania. Within a year, AAA had expanded its US-based customer service team and in November 2004 the company ranked among the top ten web hosting providers in the United States. To better serve the market, a large data center of over 40,000 servers was commissioned in Lenexa, Kansas. AAA helped solidify its US market position by completing the takeover of mail.com in 2010. Mass-market hosting success, combined with years of experience building server hardware tailored to cloud applications, was complemented by other strategic acquisitions to create a full-fledged hosting leader. AAA cemented its position as a world-class provider of hosting solutions and became the largest domain registrar in Europe. Robust infrastructure portfolio in hand, AAA then integrated cloud-based digitization applications and tools into its offering, enabling businesses of any size to safely and simply harness the benefits of the cloud.

OUR PROMISES

1. An answer to all your questions

Your personal consultant will help you get the best results out of all AAA products and services, and will assist you with any questions or problems you may have. This is an exclusive service we offer completely free of charge.

2. Everything you need to get started online

We provide everything you need to look professional online, and for reliable communication with your customers and business partners.

3. Tools for your online success

Our online marketing and search engine optimization packages, professional communication, local and online visibility, and the know-how to improve your search rankings are all at your disposal.

4. Future-proof server technology

From classic web hosting with WordPress to highly flexible cloud server solutions, AAA provides the technology professional users need, encouraging the successful development of their companies.

Powered by Liferay

13.The techniques have been utilized to produce secure code

- ✓ Encapsulation

```
private String _uuid;
private long _serviceId;
private String serviceName;
private String service Description;
private String service Price;
private long groupId;
private long _companyId;
private long _userId;
private String userName;
private Date createDate;
private Date modifiedDate;
private boolean setModifiedDate;
```

Figure 63:Source Code Example for Encapsulation

- ✓ Polymorphism

```
@Override
public Long get(Services services) {
    return services.getServiceId();
}
@Override
public Class<Long> getAttributeClass() {
    return Long.class;
}
@Override
public Class<Services> getTypeClass() {
    return Services.class;
}
```

Figure 64:Sourcr code example for Polymorphism

✓ Abstraction

```
public class Customer Local Service Impl extends CustomerLocalServiceBaseImpl {  
    protected void validate (String name, String email)  
        throws PortalException {  
    }  
    if (Validator.isNull(name)) {  
        throw new Customer NameException();  
    }  
    if (!Validator.is Email Address (email)) {  
        throw new Customer EmailException();  
    }  
}
```

Figure 66:Source Code Example for Abstraction

✓ Inheritance

```
@Implementation ClassName("AAACustomer Services.model.impl.Services Imp1")  
@ProviderType  
public interface Services extends PersistedModel, ServicesModel {  
  
    public static final Accessor<Services, Long> SERVICE_ID_ACCESSOR =  
        new Accessor<Services, Long>() {  
  
        @Override  
        public Long get(Services services) {  
            return services.getServiceId();  
        }  
        @Override  
        public class<Long> getAttributeClass() {  
            return Long.class;  
        }  
        @Override  
        public Class<Services> getTypeClass() {  
            return Services.class;  
        }  
    };
```

Figure 65:Source Code Example for Inheritance

Task 04

14. Use of design patterns for the given purpose and consequences by applying design patterns.

14.1 Usage of design patterns in the "AAA Customer Management Portlet"

Design patterns offer reusable solutions for common issues. It simplifies the software program. In addition, speeding up the development process is executed by making use of design patterns in applications. It is a platform that each developer can use. Design patterns provide a common language and are specific to a sure circumstance. As an illustration, the singleton design sample denotes using a single object, allowing all programmers who are familiar with it to use it and understand when a program is the used of it. Moreover, design patterns offer the best solution to the problems we come upon whilst developing software. The method of development may be sped up. Additionally, styles enable software designers to communicate the usage of broadly accepted nomenclature. Communal design patterns can be more advantageous over time, making them extra robust than ad-hoc designs.

- Using design patterns in the Triple-AAA Portlet is essential for keeping neat and smooth code.
- Despite the fact that the portlet has many layers of services and classes, no longer every design pattern can be beneficial whilst used by the portlet.
- We ought to use this information to determine the correct and optimal design pattern for the portlet. Because of a couple of layers of java classes, the portlet has already used the factory pattern. And, because we don't use any filtering functions in the portlet, the use of the filter pattern is probably now not a great pattern to adapt into it.

- Mainly given how the portlet implements the method and the fact that there are a couple of layers of java classes.

14.2 The consequences of design patterns that you have used in your project.

- Using the factory pattern in a portlet or any OOP project will bring about cleaner and tidier code, however if used excessively will bring about a huge number of required classes for major magnificence implementation.

15. How different design patterns can work within a range of different scenarios.

There are several design patterns and new ones are constantly being created as needed. One instance is the composite model , which is used to implement a tree structure. This may be an illustration of a folder with its sub- folders and the files discovered in them. Sheets and composites follow a model that makes use of the identical software program interface. The handling is the identical for every use.

The design situation gets rid of the need to distinguish among primitive objects and boxes. Individual objects and their combinations are treated within the identical manner.

If we think about singleton ,it limits the instantiation of a class to a single object .it is used in order that a single object coordinates operation inside a given system .it is mostly used for a system this is faster or takes up much less reminiscence .It additionally a device inside with few objects. Iterators and adapters are also a number of the main design patterns.

Iterators allow access to the element of a set without always having expertise of the technical info related to it. That is considered one of most frequently used design patterns.

As for the adapter, it lets in changing one interface into another that is exploited by an software .way to this model ,it's far possible to connect collectively interfaces that had been incompatible at first sight .that is also a frequently used procedure.

1. Creational Design Pattern

✓ **Factory Pattern**

Factory pattern is one of the most used design patterns in Java. This kind of design pattern comes under creational pattern as this pattern provides one of the high-quality approaches to create an item.

In factory pattern, we create object without exposing the introduction logic to the consumer and refer to newly created object using a common interface.

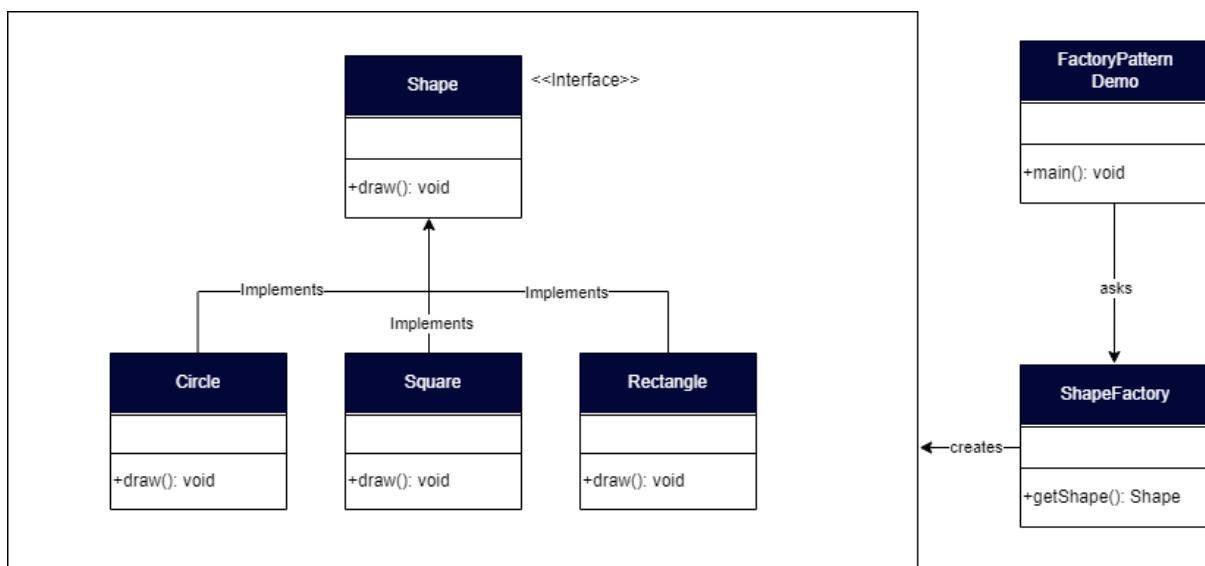


Figure 67:Factory Pattern

✓ **Singleton**

Singleton pattern is one of the only design patterns in Java. This form of design pattern comes beneath creational pattern as this pattern affords one of the quality ways to create an object.

This pattern includes a single class which is responsible to create an object even as making sure that simplest single object gets created. This class gives a way to get entry to its simplest object which may be accessed directly without need to instantiate the object of the class



Figure 68:Singleton

✓ **Prototype**

Prototype pattern refers to creating duplicate object whilst maintaining performance in thoughts. This sort of design pattern comes underneath creational pattern as this pattern provides one of the quality approaches to create an item.

This pattern includes imposing a prototype interface which tells to create a just like the present day object. This pattern is used when advent of object at once is costly. for instance, an object is to be created after a highly-priced database operation. we are able to cache the object, returns its clone on subsequent request and replace the database as and when needed for this reason reducing database calls

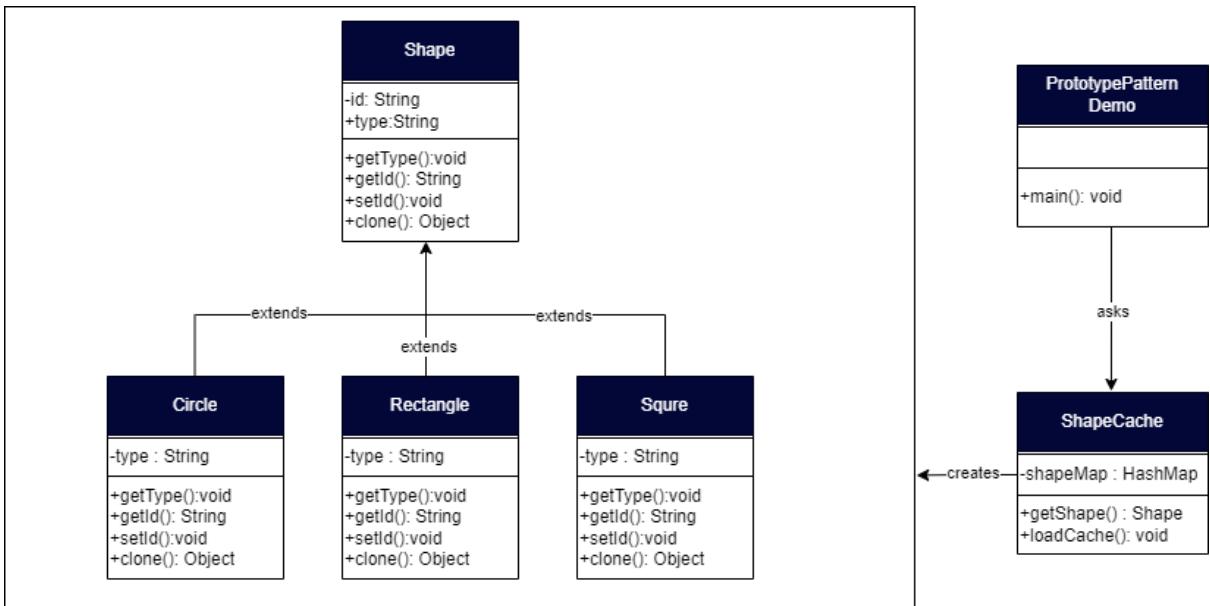


Figure 69:Prototype

2. Structural Design Pattern

✓ Adapter Pattern

In software program engineering, the adapter pattern is a software design pattern that lets in the interface of an present class to be used as another interface. it's miles regularly used to make current classes work with others without modifying their supply code.

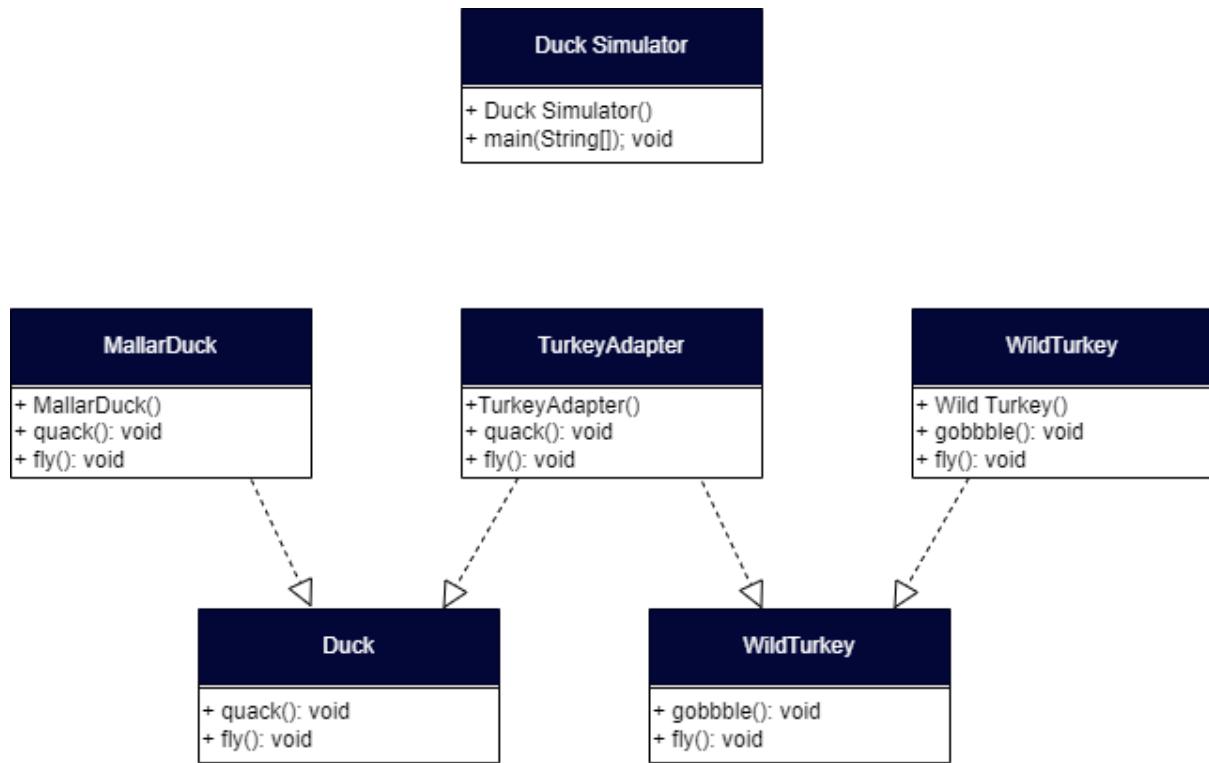


Figure 70:Adapter Pattern

✓ Façade Pattern

The facade pattern is a software program-design pattern generally used in object-orientated programming. Analogous to a facade in architecture, a facade is an object that serves as a front-facing interface covering more complex underlying or structural code.

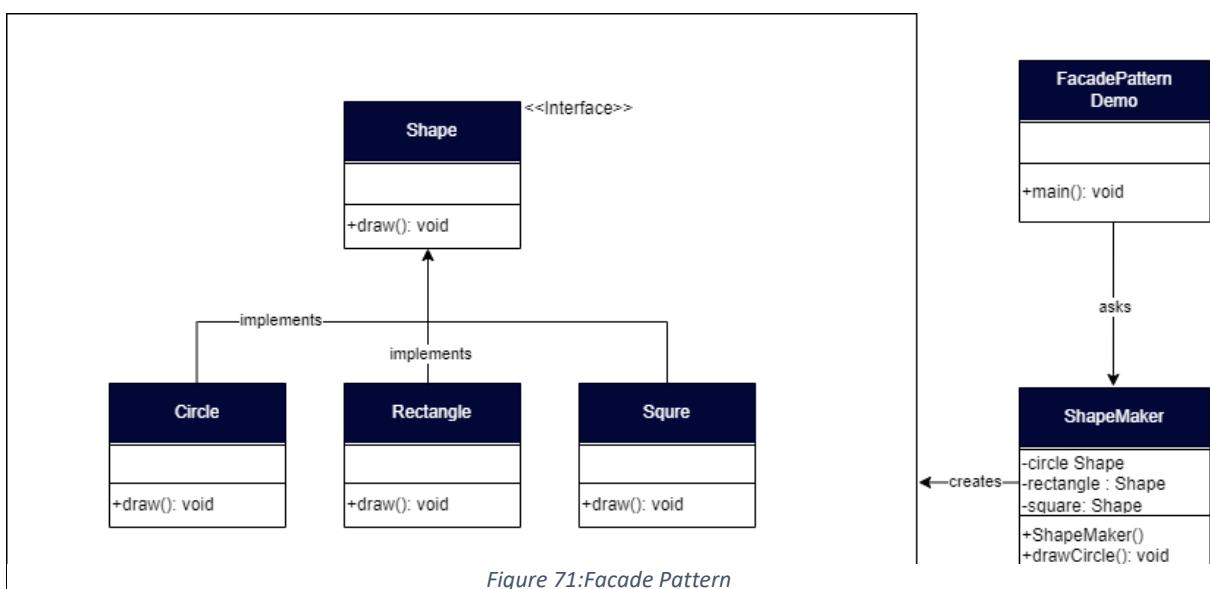


Figure 71:Facade Pattern

3. Behavioral Design Pattern

✓ Iterator pattern

In item-orientated programming, the iterator pattern is a design pattern wherein an iterator is used to traverse a box and get right of entry to the container's elements. The iterator pattern decouples algorithms from containers; in a few cases, algorithms are necessarily container-precise and hence cannot be decoupled

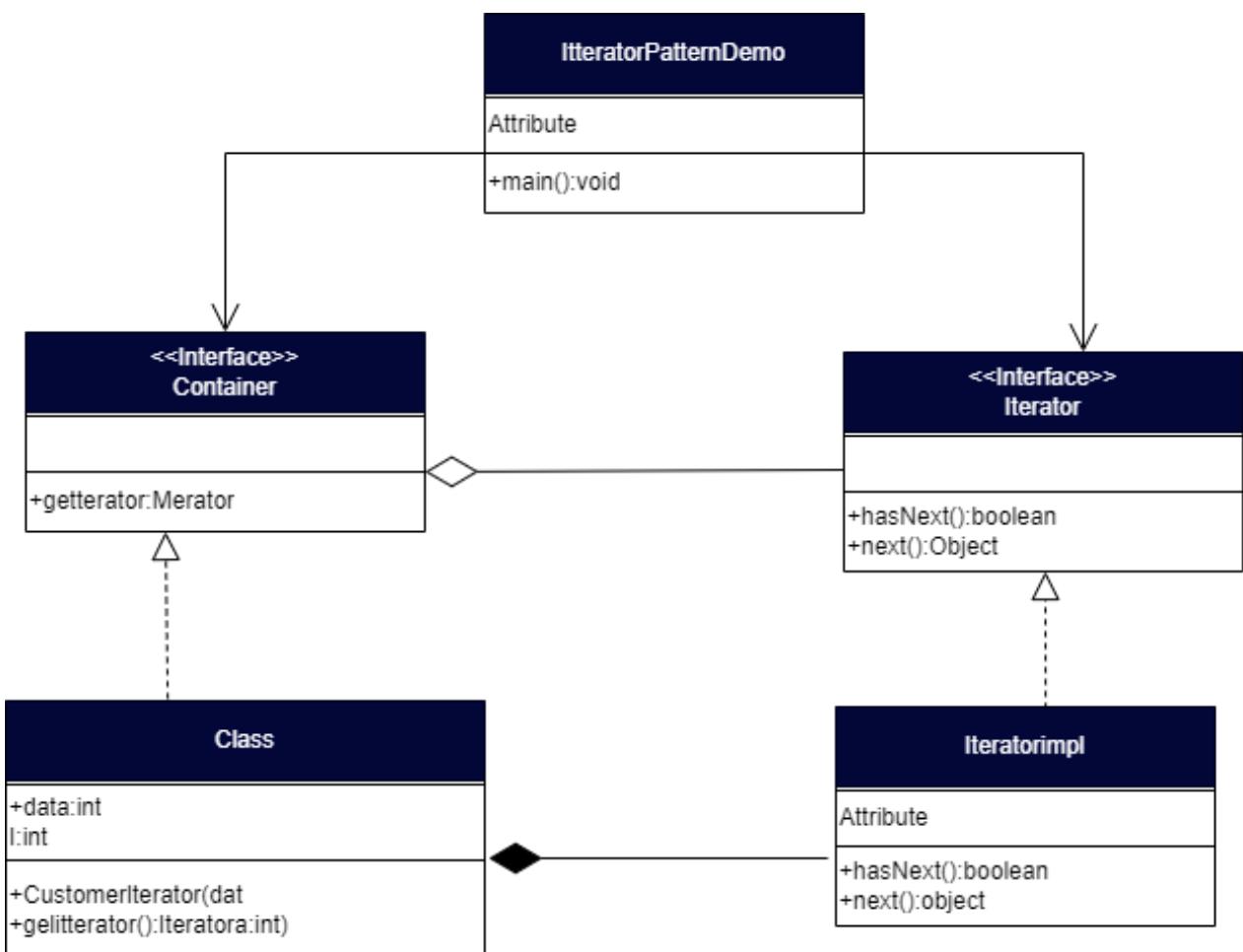


Figure 72:Iterator Pattern

✓ Observer Pattern

In software design and engineering, the observer pattern is a software program design pattern wherein an object, named the subject, maintains a list of its dependents, referred to as observers, and notifies them automatically of any state changes, generally with the aid of calling one in all their methods.

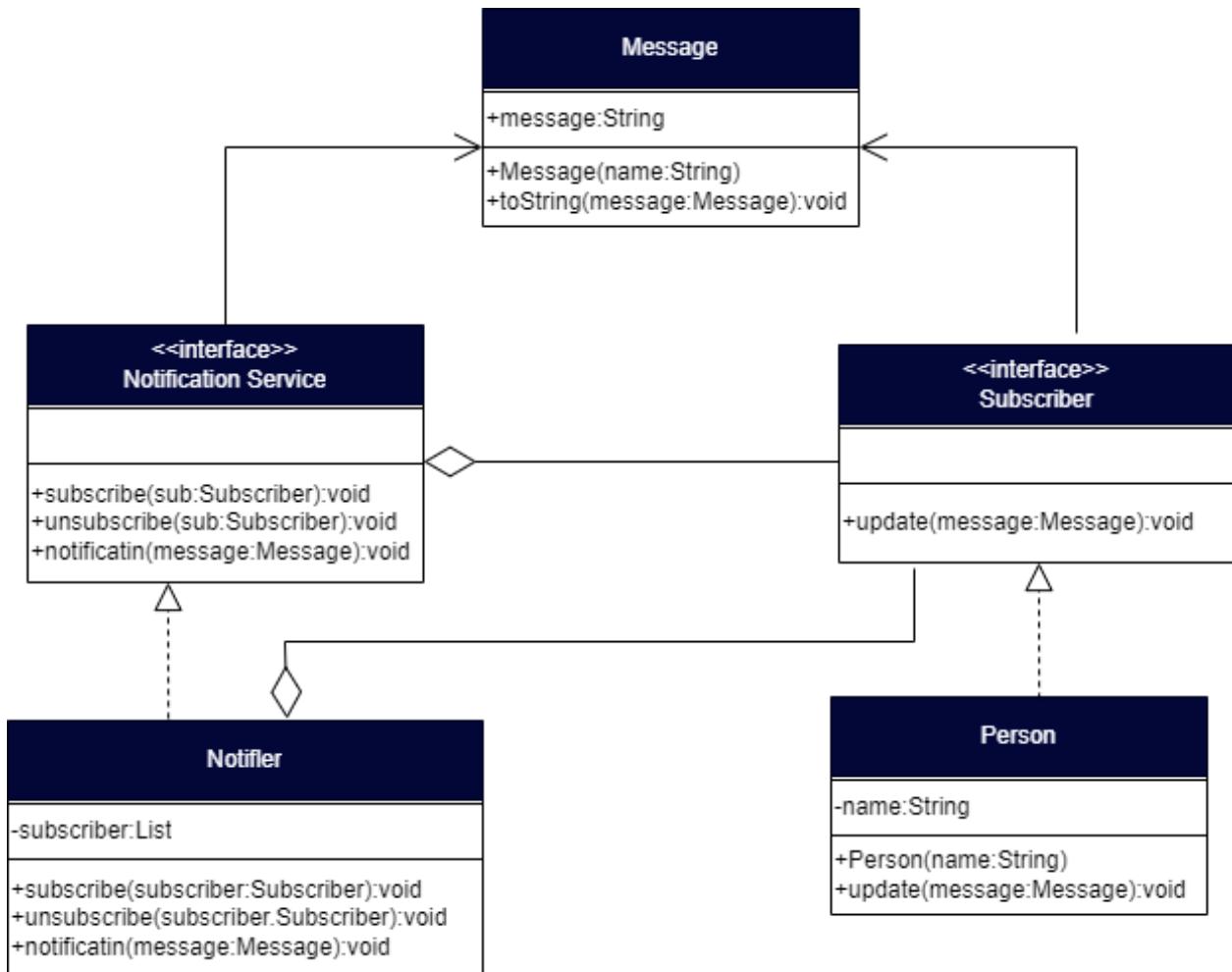


Figure 73:Observer Pattern

16.The appropriate design pattern from the investigation.

16.1 Among 3 different scenarios in creational design which you have analyzed in P4, reconcile the most appropriate design pattern

✓ **Factory Pattern**

The factory method sample may be used in a project to create an item with the aid of developing a runtime interface. factory patterns make code extra resilient, easier to modify, and much less established. as an example, we should simply exchange the implementation of a class because the purchaser is unaware of it. after all, it simplest presents interface code, now not implementation.

16.2 Among 3 different scenarios in structural design which you have analyzed in P4, reconcile the most appropriate design pattern

✓ **Composite Pattern**

The AAA Portlet has separate classes of users, each with thier own attributes and methods. through using a composite pattern, all the attributes are probably combined or grouped. method to a single website online member item and administrator. via using this method, the developer ought to control and regulate the site member or administrator's less difficult features with less effort.

16.3 Among 3 different scenarios in behavioural design which you have analyzed in P4, reconcile the most appropriate design pattern

✓ **Template method/pattern**

Due to the fact we use many classes, a maximum of which share relatively comparable code, we should create a template for an abstract class with most of the people of the functions predefined,

and then create any other class with a mild modification in accordance with the desired final results.

17. Evaluate and justify the design patterns that you had identify in each of the scenarios.

✓ Factory Method Design Pattern

Additionally, called a digital Constructor. When we do not know what are the sub lessons, we need to create we can use a factory method design pattern. Additionally, the determined class selects the advent of objects to its sub-lessons we can use the factory method design pattern.

✓ Bridge Design Pattern

Additionally, referred to as the Handler of body. Applying the Bridge layout sample improves the extensibility of the software. Additionally, we can disguise the implementation information from the patron. It's miles frequently used in locations wherein adjustments made in implementation does now not disturb the customer side.

✓ Façade Design Pattern

The facade pattern hides the complexity of the device and gives an interface to the patron the usage of with which the customer can get admission to the device. This type of design pattern belongs to the structural pattern because it adds an interface to the prevailing system to cover its complexity.

✓ Prototype

This pattern makes it viable to clone current objects without code. Because this type of operation isn't class-dependent.

✓ Composite

This is a pattern that gives an association of objects in the shape of a tree shape. Although it is inside the form of a tree, the item continues to be handled as an individual object.

✓ **Template methods**

Template methods are behavioral design patterns that define the framework of an algorithm within the superclass however allow the subclass to override certain steps of the algorithm without converting its structure.

Task 05

18. Screen capture of developed pages and hosted application in Project Presentation.

✓ Registration

The screenshot shows the 'Basic Configuration' screen for a new Liferay portal. The 'PORTAL' section contains fields for 'Portal Name' (Liferay), 'Default Language' (English (United States)), and 'Time Zone' (UTC Coordinated Universal Time). The 'ADMINISTRATOR USER' section contains fields for 'First Name' (Chathushi), 'Last Name' (Jayarathna), and 'Email' (chathushi0707@gmail.com). The 'DATABASE' section includes a link to 'Use Default Database', a dropdown for 'Database Type' (MySQL), and fields for 'JDBC URL' (jdbc:mysql://localhost/liferay?characterEncoding=UTF-8&dontTrackOpenResources=true&holdF), 'JDBC Driver Class Name' (com.mysql.cj.jdbc.Driver), 'User Name' (root), and 'Password' (*****). The 'SAMPLE DATA' section has a checkbox for 'Add Sample Data'. A 'Finish Configuration' button is at the bottom. The Liferay logo is in the top left corner, and 'Powered by Liferay' is in the bottom left of the main form area.

Figure 74: Screenshot of Registration page

✓ Login

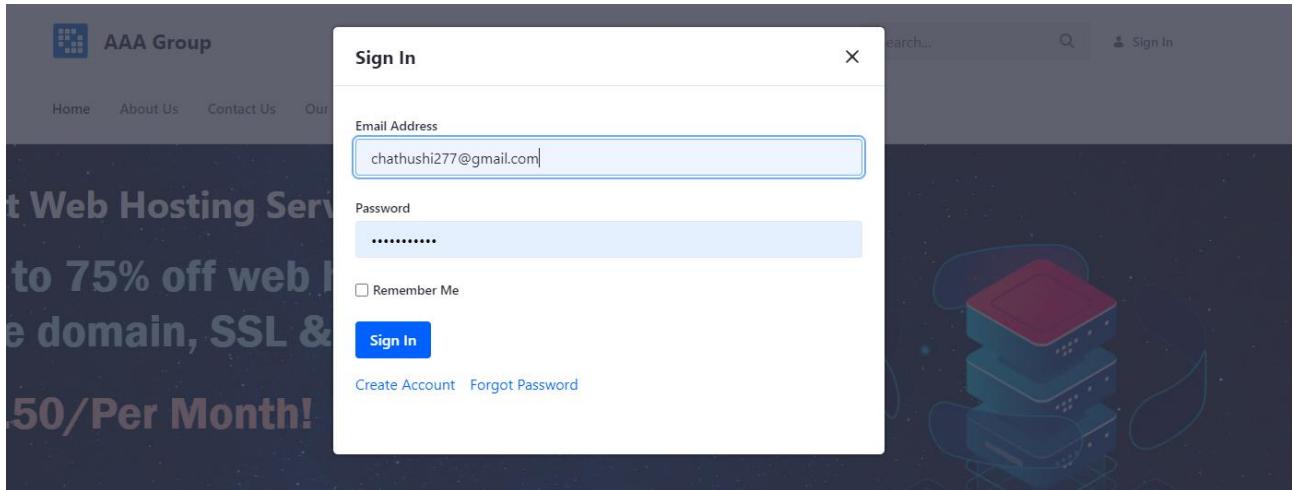


Figure 75: Screenshot of Login page

✓ Terms & Conditions

A screenshot of the AAA Group Terms & Conditions page. The header includes the 'AAA Group' logo, a search bar, and a sign-in link. The main content is titled 'AAA HOSTING TERMS & CONDITIONS'. It is organized into several sections: 'Payments', 'Client Terms', 'Termination & Non-Payment', 'Refund Policy', 'Subscriber's Responsibilities', and 'Governing Law & Arbitration'. Each section contains detailed legal text. At the bottom, a dark footer bar displays the text 'Powered by Liferay'.

Figure 76: Screenshot of Terms & Conditions

✓ Home page

The screenshot shows the homepage of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. A search bar and a 'Sign In' button are also present. The main banner features a dark blue background with white text: 'Best Web Hosting Services', 'Up to 75% off web hosting plans + free domain, SSL & DDoS protection', '\$2.50/Per Month!', and a 'GET STARTED' button. To the right of the text is a 3D illustration of server racks. Below the banner, four statistics are displayed: '#1 SMB Hosting Provider on G2', '73 Industry-leading NPS', '570k+ Supercharged Websites', and '24/7 Real-time Expert Support'. The next section, 'AAA PROFESSIONAL SERVICES', includes a sub-section titled 'Let the experts build you the site of your dreams.' with a call to action: 'Short on time? We're happy to create a beautiful & professional website for you. Simply get in touch with our experts for a free consultation'. Below this, a heading 'Every step to online success' leads to four sub-sections: 'Buy a domain', 'Add professional email', 'Security for you and your customers', and 'Boost performance with our apps'. The 'Why AAA?' section highlights 'Simple — it's all about you' with three sub-sections: 'Your business online', 'Privacy and security', and 'Customer service'. The bottom section, 'Our Company', contains six boxes: 'Our Price Guarantee for Lifetime', 'We Guarantee 99.9% Network UPTIME!', 'Ultra-Fast and Secure Servers', '24/7 Technical Support', 'Best Pricing in the Industry', and 'Anti-DDoS Protection'.

Best Web Hosting Services

Up to 75% off web hosting plans + free domain, SSL & DDoS protection

\$2.50/Per Month!

Keep your website running smoothly with a hosting company that guarantees you good uptime, fast load times and easy setup

GET STARTED

#1 SMB Hosting Provider on G2 **73** Industry-leading NPS **570k+** Supercharged Websites **24/7** Real-time Expert Support

AAA PROFESSIONAL SERVICES

Let the experts build you the site of your dreams.

Short on time? We're happy to create a beautiful & professional website for you. Simply get in touch with our experts for a free consultation

Every step to online success

Buy a domain
Register a domain name and create your online identity. Use our advanced domain name generator to get your ideal choice right away

Add professional email
Impress your customers by sending emails from @yourwebsite.com. Get secure, reliable Private Email connected to your domain, complete with business tools and calendar from just \$11.99 a year

Security for you and your customers
Take the stress out of security with low-cost SSL Certificates, PremiumDNS, VPN and more. Plus a range of features — like 2-Factor Authentication — included completely free with your account

Boost performance with our apps
Power-up your business with our range of apps. From Logo Maker and our Visual Suite to Supersonic CDN, we have the tools ready-and-waiting to aid your business' performance

WHY AAA?
Simple — it's all about you

Your business online
Boost your business with industry-premium products and services, at prices that won't break your budget. If it doesn't provide you with a better Internet experience, we simply don't offer it.

Privacy and security
Your website security and privacy come first at Namecheap, and we will always strive to protect individuals and consumers online. Our mission to keep the Internet open, free, and safe for everyone.

Customer service
You're covered by a Support Team that's renowned for being one of the most knowledgeable, friendly, and professional in the business. Real people are ready to assist you with any issue, any time, 24/7.

Our Price Guarantee for Lifetime
Our company offer you discount for lifetime, your plan and also renewal fee will be exact same, No change price, no hidden fees.

We Guarantee 99.9% Network UPTIME!
We're committed to 99.9% uptime. We will offer you a discount, or we'll issue you with account credits, if we've failed to satisfy this standard.

Ultra-Fast and Secure Servers
Our all servers based on the latest technology & fastest Intel/AMD enterprise processors, allowing for lot of sources for all customers.

24/7 Technical Support
Our support team works around the clock 365 days and our Helpdesk is always easily available to your help.

Best Pricing in the Industry
Our aim to give very best rates and feature, unique ideas in the market for any kind of current, or future planes and cost renewals.

Anti-DDoS Protection
We protect your servers around clock 365 days against any type of DDoS attack, regardless of size or duration.

Figure 77:Screenshot of Home Page

✓ About Us

AAA Group

Search... Sign In

Home About Us Contact Us Our Services Terms & Conditions

ABOUT US

AAA is the web hosting and cloud partner for small and medium-sized businesses. We are experts in IaaS and offer a portfolio of solutions for the digital space. As the largest hosting company in Europe, we manage more than 8 million customer contracts and host over 12 million domains in our own regional data centers in the US and Europe. We help entrepreneurs taking their first steps online, business owners scaling up, large companies and the partners who help them succeed. Whether building an online presence by securing a domain, building a website, moving back-office processes to the cloud, or orchestrating a container cluster, our comprehensive product range offers a best-in-class app, server or service. Reliability and security are engineered into the core of our products. Our data center network delivers optimal performance and georedundancy. With headquarters in Germany, we rely on a solid mix of state-of-the-art technology, strong privacy policies and airtight data security. Unique to the industry, we offer a dedicated customer service agent to every customer. Your own personal consultant will take the time to get to know you and your business, helping you make the most of your online presence. World-class customer support through a single point of contact is yours at no extra cost. You deserve nothing less than the latest technologies at a great price and in terms that are easy to understand. The best contract is flexible and doesn't require a team of legal experts, so we've tried to make our product offerings and prices as transparent as possible. Helping to make you a success online is our gain — ensuring that you've got time for other more important things is our goal.

OUR HISTORY

AAA was born in 1988, with the main aim of making information technology easy for everyone to understand and use. Committed to delivering powerful, reliable and secure products, AAA engineered its own data center architecture and extensive network, enabling millions of clients to get online, set up their web presence and take advantage of more sophisticated digital services. After initial successes in Europe, AAA launched AAA Inc. in 2003 in Chesterbrook, Pennsylvania. Within a year, AAA had expanded its US-based customer service team and in November 2004 the company ranked among the top ten web hosting providers in the United States. To better serve the market, a large data center of over 40,000 servers was commissioned in Lenexa, Kansas. AAA helped solidify its US market position by completing the takeover of mail.com in 2010. Mass-market hosting success, combined with years of experience building server hardware tailored to cloud applications, was complemented by other strategic acquisitions to create a full-fledged hosting leader. AAA cemented its position as a world-class provider of hosting solutions and became the largest domain registrar in Europe. Robust infrastructure portfolio in hand, AAA then integrated cloud-based digitization applications and tools into its offering, enabling businesses of any size to safely and simply harness the benefits of the cloud.

OUR PROMISES

1.An answer to all your questions
Your personal consultant will help you get the best results out of all AAA products and services, and will assist you with any questions or problems you may have. This is an exclusive service we offer completely free of charge.

2.Everything you need to get started online
We provide everything you need to look professional online, and for reliable communication with your customers and business partners.

3.Tools for your online success
Our online marketing and search engine optimization packages, professional communication, local and online visibility, and the know-how to improve your search rankings are all at your disposal.

4.Future-proof server technology
From classic web hosting with WordPress to highly flexible cloud server solutions, AAA provides the technology professional users need, encouraging the successful development of their companies.

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Figure 78: Screenshot of About us Page

✓ Contact Us Page

The screenshot shows the contact page of a website for 'AAA Group'. At the top, there is a navigation bar with links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. A search bar and a sign-in link are also present. The main header features a large smartphone graphic with floating bubbles, accompanied by the text 'Support whenever you need it' and 'Less Phone, More Support'. Below this, a sub-header states: 'We don't want to keep you hanging, waiting for someone to answer the phone. That's why we believe that live chat and other means of internet communication can solve problems more efficiently'. The main content area is titled 'Contact Us' and contains a form with fields for Full Name, Email, and Message, along with a 'Submit' button. To the right of the form is a map of Colombo, Sri Lanka, showing various landmarks and routes. At the bottom left, there is a 'Contact Details' section with email, address, and phone number information, along with social media icons for Facebook, Twitter, and LinkedIn. The bottom right contains an 'Office Locations' section with an address for AAA Groups in Colombo and Karachi, along with a note about Bandarawela.

Contact Details

Email : aaagroup@gmail.com
Head Office : 23/C Mount Lv road, Colombo Sri Lanka
Phone : +94742269976

Office Locations

AAA Groups, 1st Floor Sqaq Lourdes, St Julians STJ3334, Colombo 7
140-H Allama Iqbal Rd P.E.C.H.S Block 2 Karachi, Karachi City Sindh,
Bandarawela

Powered by Liferay

Figure 79:Screenshot of Contact us page

✓ Our Services

The screenshot displays the 'Our Services' section of the AAA Group website. The top navigation bar includes links for Home, About Us, Contact Us, Our Services (with a dropdown arrow), and Terms & Conditions. A search bar and a 'Sign In' button are also present. The main content area features eight service cards arranged in two rows of four:

- Domain Name**: Your domain helps people find you online and makes a first impression. Find one that represents you perfectly.
[Go Somewhere](#)
- Shared Hosting**: Building your own website just got easier with AAA Shared Hosting! You get all the features, tools, and guidance you need to build and launch truly impressive WordPress websites.
[Go Somewhere](#)
- Reseller Hosting**: Reseller hosting allows you to host multiple clients and allow them to manage their own orders independently. Based on Uptime, Minimum price, Support and more.
[Go Somewhere](#)
- Cloud Hosting**: Cloud Hosting is best described as a group of servers, which share their CPU, RAM, and space to make one big pool of resources, which is then virtually shared among multiple sites and users.
[Go Somewhere](#)

- VPS Hosting**: VPS Hosting puts the power in your hand. Virtual Private Servers, or VPS, give you the cost benefits of shared hosting with the performance and control of Dedicated Hosting.
[Go Somewhere](#)
- Dedicated Hosting**: A home for your website. Before you write your first post, share your first photo or sell your first product, your website needs to get online. Hosting is your website's connection to the world.
[Go Somewhere](#)
- Colocation Server**: Each cabinet supports high-density configurations, which means that you never have to settle for a deployment that is not optimal for your business. We allow you to turn-up or turn-down the amount of computing power you buy.
[Go Somewhere](#)

Powered by Liferay

Figure 80: Screenshot of our service page

✓ Domain Name

The screenshot shows a web page for 'AAA Group' with a navigation bar at the top. Below the navigation is a main section with a dark background and white text. It features a search bar with placeholder 'Search...' and a 'Search Now' button. The text 'DOMAIN NAME' and 'Make a Name for Your Website. Literally.' is displayed, followed by a subtext: 'Your domain helps people find you online and makes a first impression. Find one that represents you perfectly'. Below this is another search bar with placeholder 'Search...'. The main message 'Ending with .com is just the beginning.' is centered, accompanied by an illustration of a person working on a computer surrounded by various icons representing digital marketing and technology. A subtext below the message says: 'There are many unique domain options. Here are some of the most popular.' A section titled 'Domain Search Tips – 6 Points To Remember' follows, containing six items in a grid:

- Keep It Short**: Icon of a simple rectangle. Text: 'While there is no minimum length for domain registration, the best domain names are under three words. Longer website names are harder to read and won't stand out.'
- Less Is More**: Icon of a complex, multi-directional arrow. Text: 'Avoid hyphens, numbers, slang, and easily misspelled words in your domains. Complex elements like these will make your website address much harder to reach and remember.'
- Include Your Brand Name**: Icon of a speech bubble with a checkmark. Text: 'A great domain for your website or online store should include your brand or the target keywords for your niche. A search result with a keyword in the site name will offer better brand recognition and increase your website's traffic.'

- Domain Availability Search**: Icon of a magnifying glass over a waveform. Text: 'You need to perform a domain search to ensure it isn't already registered. Also, it's a good idea to verify if another entity hasn't trademarked it so that you can buy that domain name with confidence.'
- Think Locally**: Icon of a globe with a location pin. Text: 'While many people favor purchasing .com domains, you may want to register a country-specific extension like .co.uk or .de – especially if you target a particular country.'
- Act Fast**: Icon of a circular arrow with a checkmark. Text: 'The best website names are quickly taken. Don't miss out on the perfect domain – do a domain name search and register it in minutes.'

Below these tips is a section titled 'Discover the Most Popular Domains.' featuring four categories:

- .com**: Text: 'Build trust with this best-known domain'. Price: '\$8.88'. Call-to-action: 'SELECT'.
- .online**: Text: 'It's a great alternative to .com. Broad, generic and universal.'. Price: '\$1.79'. Call-to-action: 'SELECT'.
- .store**: Text: 'Perfect for retail businesses of all sizes across the industries'. Price: '\$3.55'. Call-to-action: 'SELECT'.
- .site**: Text: 'Can be used for any online idea. Unique and professional.'. Price: '\$0.77'. Call-to-action: 'SELECT'.

At the bottom left, it says 'Powered by Liferay'.

Figure 81: Screenshot of Domain Name Page

✓ Shared Hosting

The screenshot shows the AAA Group Shared Hosting landing page. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the right of the nav bar are a search bar and a 'Sign In' button. Below the nav bar is a dark banner with the text 'SHARED HOSTING' and 'Building your own website just got easier'. It also includes the subtext 'With AAA Shared Hosting you get all the features, tools, and guidance you need to build and launch truly impressive WordPress websites' and a 'GET STARTED' button. The main content area has a heading 'Bring your website to life.' followed by the text 'Shared hosting is the easiest, most economical way to get your website connected to the Internet so you can start building it.' To the right of this text is an illustration of four laptops connected to a central cloud icon. Below this is a section titled 'Shared Hosting Features' with three boxes: 'Free SSL Certificates' (with an SSL icon), '24/7 Live Support' (with a headset icon), and 'WordPress and cPanel' (with a WordPress and cPanel icon). At the bottom, there's a section titled 'Fast, secure, and affordable hosting plans for any budget' with four plan options: 'BASIC' (\$2.23/mo), 'PLUS' (\$2.98/mo), 'CHOICE PLUS' (\$4.98/mo), and 'PRO' (\$10.98/mo). Each plan box contains a 'SELECT' button and a detailed description of the included services. At the very bottom of the page, there's a small note: 'Powered by Liferay'.

Plan	Price	Save
BASIC	\$2.23/mo	75% with coupon
PLUS	\$2.98/mo	71% with coupon
CHOICE PLUS	\$4.98/mo	69% with coupon
PRO	\$10.98/mo	51% with coupon

Figure 82: Screenshot of Shared Hosting Page

✓ Reseller Hosting

The screenshot shows the AAA Group website's reseller hosting section. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. A search bar and a sign-in link are also present. The main header features the text "RESELLER HOSTING" and "The quality you need with all the potential to earn". Below this, a sub-header says "Can't decide? Let us help you choose the right hosting plan." followed by a "GET STARTED" button. To the left is an illustration of a computer monitor displaying server racks. To the right, the text "Make \$\$\$ as a Reseller" is displayed, along with the subtext "Sell our hosting, earn some cash. Create your own hosting business and run it any which way you like." Below this, a section titled "Reseller Hosting Features" lists four items: "All the Essentials", "WHM Control", "Account Management Tools", and "State-of-the-Art Technology", each with a brief description and an icon. Finally, the "Reseller Hosting Plans" section shows three plans: "NEBULA" (\$19.8/mo), "GALAXY EXPERT" (\$39.8/mo), and "UNIVERSE PRO" (\$58.8/mo). Each plan includes a "SELECT" button, renewal information, and disk space/bandwidth details.

RESELLER HOSTING

The quality you need with all the potential to earn

Can't decide? Let us help you choose the right hosting plan.

GET STARTED

Make \$\$\$ as a Reseller

Sell our hosting, earn some cash. Create your own hosting business and run it any which way you like.

Reseller Hosting Features

All the Essentials

Manage everything from one single dashboard (cPanel). Quickly set up Content Management Systems (WordPress, Joomla, Magento, etc) using the Softaculous script installer. Create your own private nameservers. Get unmetered bandwidth to withstand heavy traffic. Add unlimited domains/subdomains, and protect your clients with built-in firewalls and anti-virus software

WHM Control

Create and modify your clients' hosting accounts with Web Host Manager (WHM), a handy program that gives you administrative access to the back end of cPanel. So when you create a new account for your client, it's kept separate from yours, allowing you to individually manage as you see fit

Account Management Tools

Whether you want to set up client invoices or brand the existing cPanel logo with a customized one, our full suite of tools helps make the most out of your business. Take advantage of the WHMCS billing platform, white-label marketing tools, the SSL reseller program, and much more.

State-of-the-Art Technology

Deliver fast, reliable, and secure hosting to your clients, thanks to our Juniper/CISCO network. Here we run special high-powered reseller servers such as Dell PowerEdge with 56 core Xeon CPUs, 256GB+ RAM, and RAID 6 Pure SSD.

Reseller Hosting Plans

NEBULA
\$19.8/mo
Save 50% with coupon

SELECT
Renews at \$19.88/month
(60 GB disk space, 600 GB bandwidth, Unlimited websites, Free SSL certificate)

GALAXY EXPERT
\$39.8/mo
Save 50% with coupon

SELECT
Renews at \$39.88/month
(90 GB disk space, 900 GB bandwidth, Unlimited websites, Free SSL certificate)

UNIVERSE PRO
\$58.8/mo
Save 50% with coupon

SELECT
Renews at \$58.88/month
(140 GB disk space, 1400 GB bandwidth, Unlimited websites, Free SSL certificate)

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Figure 83: Screenshot of Reseller Hosting Page

✓ Cloud Hosting

The screenshot shows the 'Cloud Hosting' section of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the right of the nav bar are a search bar, a magnifying glass icon, and a 'Sign In' button.

The main header features the text 'CLOUD HOSTING' and 'Unleash the Power of Managed Cloud Hosting'. Below this, a sub-header reads: 'Save time & money with simple and reliable cloud hosting trusted by 80,000+ agencies, developers, and businesses that demand high performance from their websites!'. A prominent 'GET STARTED' button is located below the sub-header.

A section titled 'Discover Possibilities, Not Hosting Worries' includes the text: 'Cloudways removes the complexity of cloud hosting and lets you focus on what matters most: your business'. To the right of this text is a 3D-style illustration of a person standing next to a laptop connected to a cloud icon.

The 'Cloud Hosting Features' section lists three items:

- Safe Environment**: An icon of a helmet. Description: Data centers are reinforced with thick concrete walls, 24/7 surveillance, and multiple security layers, making cloud hosting one of the most secure platforms to host your business-critical data.
- Automated Backups**: An icon of a blue storage unit. Description: No need to separately copy files to new folders. Let automated programs do the work for you. Backups update right when you make changes to original files.
- Uptime Guarantee**: An icon of a rocket launching. Description: What good is a service that cannot guarantee quality? Cloud services come with an uptime assurance of three nines (99.9+%). With downtime as little as an hour in one year, your website runs like an engine does after lubrication.

The 'Configure. Order. Deploy.' section shows three pricing plans:

- CLOUD STARTUP**: \$7.20/mo. Save 25% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 1GB, Processor 1 Core, Storage 25GB, Bandwidth 1TB)
- CLOUD PROFESSIONAL**: \$14.23/mo. Save 22% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 2GB, Processor 1 Core, Storage 50GB, Bandwidth 2TB)
- CLOUD ENTERPRISES**: \$27.11/mo. Save 45% with coupon. **SELECT** button. Description: Valid for first 4 invoices only. (RAM 4GB, Processor 2 Core, Storage 80GB, Bandwidth 4TB)

At the bottom left, it says 'Powered by Liferay'.

Figure 84: Screenshot of Cloud Hosting Page

✓ VPS Hosting

The screenshot shows the VPS Hosting section of the AAA Group website. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, Terms & Conditions, a search bar, and a sign-in link. Below the navigation is a dark banner with the text "VPS HOSTING" and "VPS hosting that puts the power in your hands." followed by a "GET STARTED" button. To the left of the main content area is a 3D illustration of several server racks. The main heading "Choose the right plan for your big plans." is centered above a subtext: "Whether you're building one high performance site or an army of them, our plans flex to your needs." Below this, a section titled "VPS Hosting Features" lists four benefits with icons: "Completely Customizable" (server icon), "Powerful VPS Security" (shield icon), "Incredibly Fast" (rocket icon), and "24/7 Live Support" (helmet icon). Each feature has a brief description. At the bottom, three hosting plan options are shown in boxes: "STANDARD" (\$19.8/mo), "ENHANCED" (\$29.95/mo), and "ULTIMATE" (\$59.99/mo). Each plan includes a "SELECT" button and a detailed description of the included resources.

VPS HOSTING

VPS hosting that puts the power in your hands.

Can't decide? Let us help you choose the right hosting plan.

GET STARTED

Choose the right plan for your big plans.

Whether you're building one high performance site or an army of them, our plans flex to your needs.

VPS Hosting Features

Completely Customizable

No matter your level of tech-savviness, your VPS comes customized. Choose your Operating System (Ubuntu, CentOS or Debian), gain root access to your server, and decide if you want a control panel (cPanel) installed.

Powerful VPS Security

Thanks to our state-of-the-art hardware, software firewalls, and internal security package, your virtual hosting environment remains in safe hands. For further peace of mind, enjoy routine server backups.

Incredibly Fast

Pure Solid State Drive (SSD) means you're looking at 20X faster storage over traditional Hard Disk Drives (HDD), which are preferred by VPS competitors. This results in significant improvements to your website's performance, speed and loading times.

24/7 Live Support

If you've got questions, want to discuss your custom VPS options or upgrade your level of server VPS management, we're here for you—round the clock.

Control and flexibility when your business needs it

STANDARD
Get started with your own virtual server

\$19.8/mo
Save 50% with coupon

SELECT

You pay \$82.56 — renews at \$82.56/year
(1 2 Cores, 30 GB SSD Storage, 2 GB RAM, 1 TB Bandwidth, 1 IP Address, cPanel Accounts - 5, cPanel/WHM)

ENHANCED
More storage means more room to play

\$29.95/mo
Save 52% with coupon

SELECT

You pay \$154.56 — renews at \$154.56/year
(2 Cores, 60 GB SSD Storage, 4 GB RAM, 2 TB Bandwidth, 2 IP Addresses, cPanel Accounts - 30, cPanel/WHM)

ULTIMATE
The perfect pairing of power and resources

\$59.99/mo
Save 58% with coupon

SELECT

You pay \$298.56 — renews at \$298.56/year
(4 Cores, 120 GB SSD Storage, 8 GB RAM, 3 TB Bandwidth, 2 IP Addresses, cPanel Accounts - 50, cPanel/WHM)

Powered by Liferay

Figure 85: Screenshot of VPD Hosting Page

✓ Dedicated Hosting

The screenshot shows the homepage of the AAA Group Dedicated Hosting service. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services, and Terms & Conditions. On the right side of the nav bar are a search bar and a 'Sign In' button. The main header features the text 'DEDICATED HOSTING' and 'A dedicated headquarters for your online empire.' Below this is a sub-header 'Can't decide? Let us help you choose the right hosting plan.' followed by a 'GET STARTED' button. A large graphic on the right depicts a 3D cityscape with people interacting with server racks, symbolizing a robust online presence.

Choose the plan that matches your needs.

Whichever you choose, with dedicated hosting it's all yours. No sharing, no competition, no limits.

Dedicated Hosting Features

- Free Migration**
Want to transfer your existing server to Namecheap? It's simple and it's free. With zero additional charges to set up or install your Operating System (OS), you won't find hidden costs with us.
- Free SSL Certificates**
Manage your Dedicated Server exactly how you like. With three management options to choose from (User-Responsible, Basic or Complete), you decide how much control you want.
- Airtight Security**
Feel extra secure thanks to a private peering network, which provides you with stable connectivity for any website or application you may be running. Under Complete Server Management, our technicians will routinely monitor to check for any server issues.
- Optimized Network**
Forget costly downtime or slow loading speeds. Your Dedicated Server operates on a separate Cisco network that's connected to Level3, Highwinds, HE, Cogent, and Integra, ready to handle any incoming traffic.

Simply select your preferred type of management during the purchase phase.

STANDARD	ENHANCED	PREMIUM
\$89.90/mo Save 50% with coupon SELECT Auto renews at regular rate (4 core / 8 thread, Intel Xeon-D CPU, 8 GB RAM, 1 TB HDD, Unmetered bandwidth, Linux or Windows OS)	\$79.99/mo Save 33% with coupon SELECT Auto renews at regular rate (8 core / 16 thread, Intel Xeon-D CPU, 16 GB RAM, 2 TB HDD / 512 GB SSD, Unmetered bandwidth, Linux or Windows OS)	\$119.9/mo Save 42% with coupon SELECT Auto renews at regular rate (8 core / 16 thread, Intel Xeon-D CPU, 30 GB RAM, 1 TB SSD, Unmetered bandwidth, Linux or Windows OS)

Powered by Liferay

Figure 86: Screenshot of Dedicated Hosting Page

✓ Colocation Server

The screenshot shows the homepage of the AAA Group website, specifically the Colocation Server Hosting section. At the top, there's a navigation bar with links for Home, About Us, Contact Us, Our Services (with a dropdown menu), and Terms & Conditions. On the far right of the nav bar are a search bar and a 'Sign In' button.

The main header features the text 'COLOCATION SERVER HOSTING' and a large, bold, yellow banner that reads 'Protect, power, and connect your infrastructure, globally'. Below this, a sub-headline says 'Maximize availability, minimize risk, and reduce costs with IT colocation services in our state-of-the-art facilities. You get reliability, performance, and security, without the risk and overhead of building and maintaining your own data center'. A prominent blue 'GET STARTED' button is centered below the sub-headline.

On the left side of the page, there's an illustration of a person working at a desk connected by a cable to a server rack. To the right of this illustration, the text 'Colocation Server Hosting Solutions' is displayed in a large, bold font. Below it, a smaller text block encourages users to 'Start ordering your rack space in any available data center and have full control over your hardware.'

The central part of the page is divided into three sections, each representing a different colocation plan:

- 10U COLOCATION PLANS**: Priced at \$399/mo. Includes a 'SELECT' button and a note: 'Save 50% with coupon'. Below the price, it lists technical specifications: 'Rack Space: 10U, 17.50" Height, Power: 5 Amps, 120V AC, Bandwidth: 25Mbps, Network: GigE Port, 24/7 Support & Reboots: Yes, Free Setup: Yes'.
- 21U COLOCATION PLANS**: Priced at \$699/mo. Includes a 'SELECT' button and a note: 'Save 24% with coupon'. Below the price, it lists technical specifications: 'Rack Space: 21U, 36.75" Height, Power: 20 Amps, 120V AC, Bandwidth: 50Mbps, Network: Mbps on GigE Port, 24/7 Support & Reboots: Yes, Free Setup'.
- 42U COLOCATION PLANS**: Priced at \$999/mo. Includes a 'SELECT' button and a note: 'Save 15% with coupon'. Below the price, it lists technical specifications: 'Rack Space: 42U, 73.50" Height, Power: 20 Amps, 120V AC, Bandwidth: 1100Mbps, Network: GigE Port, 24/7 Support & Reboots: Yes'.

At the bottom of the page, a dark footer bar contains the text 'Powered by Liferay'.

Figure 87: Screenshot of Colocation Server Hosting Page

✓ **Manage Service & Customer**

- **Service**

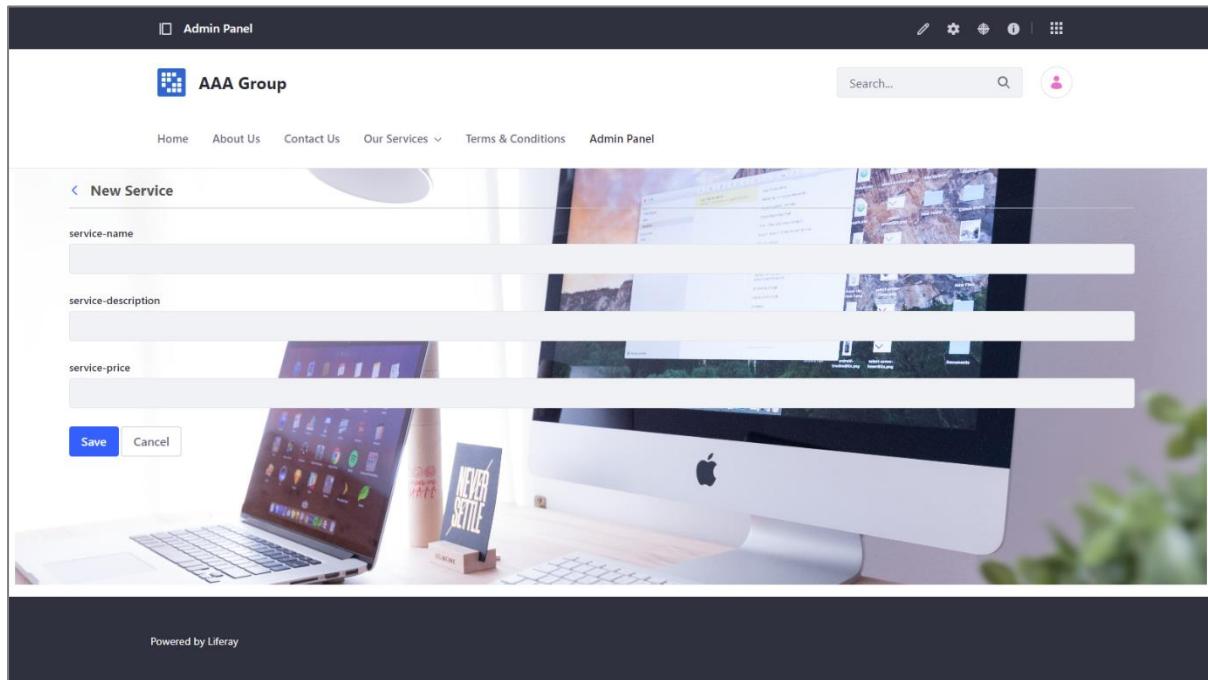


Figure 89:Screenshot of Service 1

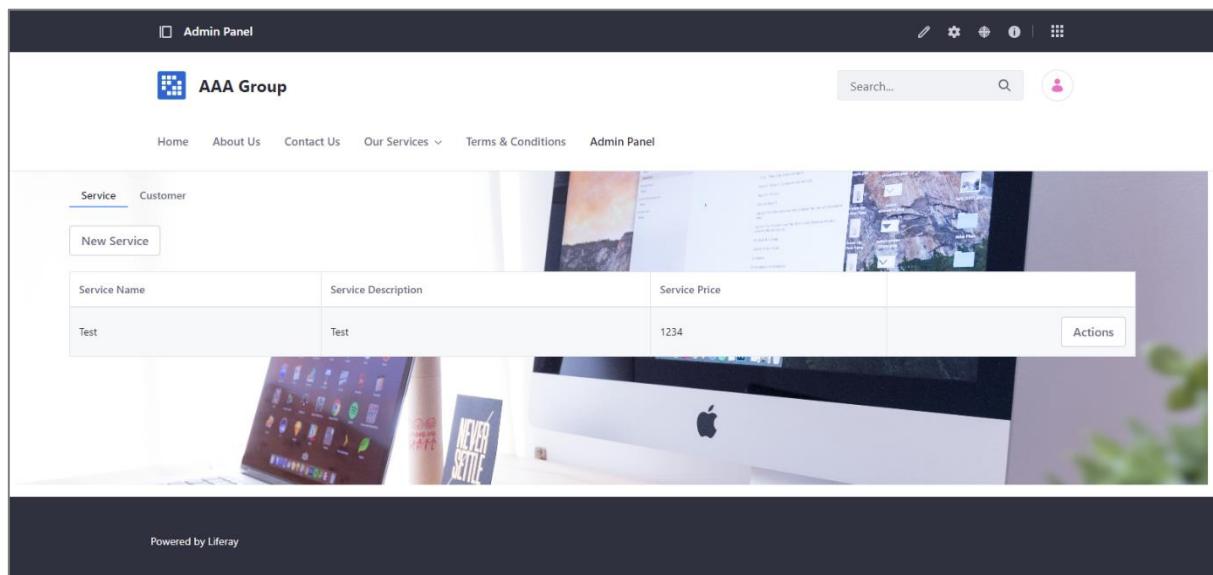


Figure 88:Screenshot of Service 2

- **Customer**

New Customer

Name	test
Email	test@gmail.com
Address	test
national_id	123456789012
Contact	1234567890
Services	Test
start_date	12/06/2022 01:42 PM

Save **Cancel**

Powered by Liferay

Figure 91:Screenshot of Customer 1

Customer

Name	Email	Address	National_Id	Contact	Service Name	Date	Actions
test	test@gmail.com	test	123456789012	1234567890	Test	12/06/2022 01:42 PM	Edit Delete
test1	test1@gmail.com	test1	123456789013	1234567897	Test	12/06/2022 01:42 PM	Edit Delete

Powered by Liferay

Figure 90:Screenshot of Customer 2