

Assignment 2

Your team (same as previous):

<https://docs.google.com/spreadsheets/d/1a1WKnckbmg24iLs7FkolMM-n5O6gkRFkK-uTsvYT49E/edit?usp=sharing>

Your team will be given the topic for a project with description, your task is to implement ONE of the design patterns:

- Bridge
- Composite
- Decorator
- Flyweight

You are not required to develop the project (for example, if the project is about to create an Android app, then it does not mean that you have to create an Android project. It means you should just take into account the aspects of mobile development when you are creating your classes). It is about implementing the design pattern within the context of the project. You may choose any feature (functionality) of your project, and if you think that the description does not contain a feature to implement the design pattern, you are free to add a feature to the project within the context of the topic.

Your work should contain the followings:

1. UML class diagram - (weight 35 %)
2. Code - (weight 50 %)
3. Report - (weight 15 %)

That is you should first create an UML diagram (preferably in draw.io) for the given problem, then you should implement the UML diagram in Java. Also write a report that describes your code and UML, and the reason why you chose the particular pattern to implement the feature.

You have to submit two items to moodle:

1. Doc which contains UML class diagram (if the diagram is too big, then write the url to your draw.io) and report
2. The source code (written in JAVA) files in zipped format.

You will get 100 if your work meets the following requirement:

- For the UML class diagram: the fields / methods are implemented logically according to the feature (you don't have to define a lot of fields/methods, define only those that are necessary obviously). And when you are defining primitive types, the types should be consistent with: <https://www.uml-diagrams.org/data-type.html>

- For the UML class diagram: the relationship between classes should also be defined (if there is an association then define it). Look at here: <https://www.uml-diagrams.org/class.html> . When there is a relationship between classes, you should also indicate it in your class fields/methods (for example, if class A has the instance of class B, then indicate class B as a field in the class A).
- When you implement the UML diagram in code, follow OOP principles. And your code should be consistent with your UML diagram, say all the methods/fields in your UML diagram should also be implemented in your code. Also, show how your classes can be used. (For example, if you created classes for the Factory design pattern, also write a code snippet that implements, creates objects etc).
- Your report clearly and shortly justifies why you chose the particular pattern and describes the job you have done in UML and your code.
- Programming language restrictions: you can only use Java or Kotlin in your code.

The deadline 23:00, 28th of April, 2021

Team#	Topic	Description
1	Hospital Management System	<p>This is a software system that incorporates various factors needed for smooth working and management of a hospital. This hospital management system allows administrator to store and manage various products and related data. This includes the beds/normal accommodation/ICU accommodation as well as patient data. In case a new patient arrives, the administrator may check for bed availability in various hospital departments and allocate it accordingly as per the patient need. The system also stores the patient data in a well defined manner. The patient details include his name, number, address and various health parameters. The software system has front end to design an interactive GUI and an Sql DBMS to store its back end data. This back end data includes accommodation details and even related patient data for effectively managing a hospital.</p>
2	Hotel Management Android Project	<p>The regular hotel management system project entirely in an android app. This android application allows the hotel manager to handle all hotel activities in his android phone. Interactive gui and the ability to manage various hotel bookings and rooms from an android phone makes this hotel management system very flexible and convenient. The hotel is a very busy person and does not have the time to sit and manage the entire thing sitting at a single computer. This application gives him the power and flexibility to manage the entire system from a single android phone. Hotel management android project provides room booking, staff management and other necessary hotel management features top make it a complete portable hotel management solution.</p>
3	iPad Restaurant Application	<p>The iPad restaurant application aims at replacing the conventional menu system which is time consuming and old fashioned. Meal orders can be taken on an iPad, which will have the complete menu offered by the restaurant/hotel. Each menu item, under any of the above categories comes with a description of the item, ratings given by previous customers, a large image for better knowledge of the dish, and the cost of the item. The customer could also use the iPad provided by room service for reserving a table. The languages used for development in this project are Objective C for developing the application for iPad & for the server part PHP is being used as the language. It can be used in computer science as well as It projects for students.</p>

4	Image Editor Project	<p>This is an image editor with various image editing functionality that allows you to crop, zoom, transform, adjust brightness and apply more such transformations over an image.</p> <p>This software system first allows the user to choose an image from your local computer.</p> <p>A menu bar on the top of the screen provides this functionality. The menu bar allows the user to open a new image and even save an edited image in your computer.</p> <p>The application also allows you to zoom in and out of the image.</p> <p>The user may apply various transformations over an image. The user may adjust image brightness and contrast. User can even apply gamma correction on the image. It also allows the user to crop and rotate the image as needed. Application also allows user to add reddish, bluish and greenish effect to the image.</p> <p>Finally user may save the edited file as needed.</p>
5	Weather Forecasting Using Data Mining	<p>Weather forecasting is the application of science and technology to predict the state of the atmosphere for a given location. Ancient weather forecasting methods usually relied on observed patterns of events, also termed pattern recognition. For example, it might be observed that if the sunset was particularly red, the following day often brought fair weather. However, not all of these predictions prove reliable. Here this system will predict weather based on parameters such as temperature, humidity and wind. This system is a web application with effective graphical user interface. User will login to the system using his user ID and password. User will enter current temperature; humidity and wind, System will take this parameter and will predict weather from previous data in database. The role of the admin is to add previous weather data in database, so that system will calculate weather based on these data. Weather forecasting system takes parameters such as temperature, humidity, and wind and will forecast weather based on previous record therefore this prediction will prove reliable. This system can be used in Air Traffic, Marine, Agriculture, Forestry, Military, and Navy etc.</p>
6	Engineering College Automation and Scheduling System	<p>This project uses a web application concept to facilitate the departmental system in educational institutes. It uses the most reliable way of uniquely identifying students through website. Such type of web application is very useful in school as well as in college for daily attendance. Through this web application, we can keep a systematic record of students details, mark sheet, attendance and defaulters list. This project enables the easy way of maintaining class attendance with fewer efforts.</p>

		<p>The system also generates a brief report of attendance from the database according to subject-wise or date-wise as required. A defaulter list can be generated through system. Staff and HOD has the option to take a print of the reports and defaulter list thus generated. Hence, this project introduces a manageable and systematic approach of maintaining student and staff records.</p>
7	Online Bookstore System On Cloud Infrastructure	<p>An online bookstore software projects that acts as a central database containing various books in stock along with their title, author and cost. This project is a website that acts as a central book store. This web project has front end, back and sql as a back-end. Such online bookstores tend to get a large amount of online visitors. In order to provide optimal performance and avoid site crash the system needs to be hosted on a cloud infrastructure. The sql database stores various book related details. A user visiting the website can see a wide range of books arranged in respective categories. The user may select desired book and view its price. The user may even search for specific books on the website. Once the user selects a book , he then has to fill in a form and the book is booked for the user. The system thus handles a large amount of users with ease using azure based cloud infrastructure.</p>
8	Android Employee Tracker	<p>This system is a combination of web as well as android application where the user will be using the android application and admin as well as HR will work with web application. This application is meant for field work Employers. The Employee will have this application in his android phone, when the user will login to the system his image will be captured and his GPS location will be send to the admin where admin will view image and GPS location in web application. After Login, GPS location of the employee will be tracked automatically by the system and send to the admin after every 5 minutes .When employee logout the system again the image will be captured as well as GPS location will be send to the admin. In order to keep track of the attendance as well as payroll of the employee, this system plays a major role. The role of the admin is to add new employee by entering his personal details and admin will provide the employee with identity number and password to the user so that he can access the application in his android phone. Admin can view the GPS location of the employee by entering Employee Identity Number as well as Date. Admin can check the salary of the particular employee by entering date and employee ID. Admin can view latitude and longitude of the GPS location sent by the employee. Admin can change the password of the employee. When the HR login to the system he can check the GPS location of the employee by entering</p>

		<p>employee ID and date. HR can check salary of the particular employee by entering employee identity number and date. This application helps admin and hr to easily check the salary of the employee. Since GPS location of the employee is tracked, so employee will not attempt to add proxy attendance.</p>
9	Public Photography Contest With Live Voting	<p>We usually come across areas where a photographer can show his skills and win some award, but it was not properly portrayed. Using our System Admin / can conduct contest based on a topic. Admin can Choose the winner by 2 ways, No of Like on Photograph, Or Admin can directly select the winner. Admin can remotely view the images through, and select for best one, Photographer can register them self to this, so that they get notification of the completion (By Mail or SMS), Photographer's will be notified One week before the contest, If entries exceed the required, admin will first select top images and then users will vote for best one, One User will be allowed to vote for 3 photos only, Winner of the contest will be notified by (Mail or SMS), The role of admin is to check that images belong to that photographer only, and he has not taken it from other sources.</p>
10	Online Election System Project	<p>Online Election System would have Candidate registration, document verification, auto-generated User ID and pass for candidate and Voters. Admin Login which will be handled by Election Commission .Candidate Login which will be handled By Candidate, Voters will get Unique ID and Password, Using which they can vote for a Candidate only once per Election. The project is beneficial for Election Commission, Voters as the can get to know the candidate background and choose wisely, and even for Candidate. The software system allows the Candidate to login in to their profiles and upload all their details including their previous milestone onto the system. The admin can check each Candidate details and verify the documents, only after verifying Candidate's ID and Password will be generated, and can remove faulty accounts. The software system allows Voters to view a list of Candidates in their area. The admin has overall rights over the system and can moderate and delete any details not pertaining to Election Rules.</p>

11	Webpage Ranking Search Engine With Seo Suggester	<p>A search engine is an information retrieval system that has various website data stored in it. It shows user appropriate results on search. It also consists of website data. The search engine records no of times the url was clicked on, its goes to web url to fetch its meta data and gives points according to page errors. An seo suggester used with it allows user to enter a live url. Our system goes and scans the webpages extracts its meta features and provides seo suggestions. The search engine is first fed with URLs of various website and stores this data in its database. After that the search engine allows user to search for particular data. The user can enter the data or text lines (query) to be searched. The system then uses this text and matches it with the content provided in the URLs fed in the database. The user query is matched with these contents and finally it generates a list of related URLs. The user can then click on the URLs thus generated and it will take them directly to the website. The search is based on users demand. Once user clicks on the links he sees the web page and all the data on it. It also calculates and displays the web page rank based on website meta score and number of visits. The system has an advance feature that suggests website's owner for suitable keywords, meta descriptions for their website's SEO.</p>
12	Online Private Tutors Finder System	<p>This private tutor system will help to find tuition teachers from nearby locations. Teachers can also get a student just by logging onto the website and setting up the profile. In the personal tutor finder system, there are three entities namely, Admin, Parents, and Tutor. Admin can login, manage tutor by adding new teachers and update their profiles. Admin can also manage E-books by adding new books to the library. Admin can also check for the registered parents. Admin will register tutors and credentials will be shared with tutors by Email. Parents can register and login, tutors can be viewed by parents. Parents can filter and select the tutor and after selecting parents will raise the request of the demo lecture. After attending the lecture, they can book the tutor online, rate the tutor and view the E-Books. The tutor can login by using credentials that will be provided by mail. They can check for the request for a demo lecture and accept the request. They can also check the booking done. They need to set their profile. This private tuition system can help the tutors to get students and parents to find the best tutors for their children.</p>

13	Opinion Mining For Social Networking Site	<p>This system uses opinion mining methodology in order to achieve desired functionality. Opinion Mining for Social Networking Site is a web application. Here the user will post his views related to some subject other users will view this post and will comment on this post. The System takes comments of various users, based on the opinion, system will specify whether the posted topic is good, bad, or worst. User can change his own profile picture and can update his status. These changes can be viewed by various users. We use a database of sentiment based keywords along with positivity or negativity weight in database and then based on these sentiment keywords mined in user comment is ranked. Once the user logs in to the system, user can view his own status as well as he can view the topics posted by other users. When the user clicks on a particular topic user can give his own comment about the topic. System will use database and will match the comment with the keywords in database and will rank the topic. User can edit his own profile and can change his profile picture. The role of the admin is to add post and adds keywords in database. This application can be used by users who like to post view about some events that is already held, or can post about the events that is going to be held. This application also works as an advertisement which makes many people aware about the topic posted. This system is also useful for the user's who need review about their new idea. This system is also useful for the user's who need review about any particular event that is posted.</p>
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