



Faculty of Engineering and Technology

Computer Science Department

Software Engineering

COMP433

Course Project – Phase 2

Project Name: Adverttech Software System for Golden Adverts

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Introduction

Adverttech is a powerful software system for Golden Adverts. It supports many developments needed to expand the company's capabilities and improve its efficiency in the advertising industry in the West Bank region, as we have built a comprehensive software system that can automate all operations of this company. It is managing customer information, billboards, advertisements on social media, and television and radio advertising campaigns, which are the sections that we will work to develop in this project.

The current system in place in Golden Adverts relies heavily on Excel spreadsheets, and the data is entered manually, so it can track information for customers and it also maintains information for a wide range of customers (companies, institutions, and individuals) in the form of spreadsheets. Currently, the software records all customer contact information including phone numbers, cell phone numbers, emails, websites, etc., as well as a description of the customer's business. This way of storing data is less secure, less scalable, confusing and more likely to be lost. It is also difficult to obtain reports on the financial condition of employees, including salaries, costs, and taxes that management requests. This makes supervising the company's financial position in an effective manner difficult.

In addition to the above, the current system lacks the ability to provide clients with a proper online platform to manage their campaigns. So that customers must rely mainly on e-mail as well as phone calls to communicate with the company, and this is considered a waste of time and impractical due to the presence of large numbers of customers and it also causes customer frustration.

In order to solve these challenges that we face, we propose a comprehensive and complete software system that integrates all operations of the Golden Adverts company, including commercial operations, as it provides an exciting, simplified and effective experience for both employees and different customers. As our system will automate many tiring manual operations in the company, and this reduces the errors that we face and it also improves efficiency further and increases security, which makes customers feel comfortable. In addition, the system will provide an online platform for customers to manage their own campaigns, which will make communication with the company easier and more convenient for them.

Our offered system will be built using the latest and best technologies and best practices, as we ensure that the system is scalable and optimizable, in addition to being highly flexible and reliable. We will work closely with the Golden Adverts team to ensure that the system will meet all their needs and requirements. Moreover, our team has very extensive experience building high quality systems and software of all sizes. Our software system will include a VIP list, where they will receive special attention and will get discounts and discounts on their campaigns, in order to gain their trust and encouragement. We are confident in our ability to provide appropriate solutions that meet the needs of the company and exceed the expectations of Golden Advertising Company.

In conclusion, we believe that our proposed software system will provide many, many features and benefits for Golden Adverts, including improved features, better collaboration, and a unique experience that is highly suitable for customers. and for the project requirements we will use the reuse – oriented method with the incremental software process. We are ready to work with Golden Adverts and reach the goals to be achieved, and we are ready to provide the best solutions that will distinguish them from their competitors.

System Features

As for the functional requirements:

- 1. Ad Campaign Management:** The software should enable the development, administration, and tracking of multiple ad campaigns across billboards, radio, television, social media, and other media. It ought to keep track of the campaign's beginning and ending dates, as well as its description, expenses, and other pertinent information.
- 2. Customer Relationship Management (CRM):** Client information should be managed by the software, including contact information, business domain, campaign history, and assigned employees in the business department. It must also keep track of a list of "golden clients" who receive preferential treatment and discounts on their advertising campaigns.
- 3. Billboards Management:** The software should keep track of the billboards' positions, sizes, names, and intricate scheduling of advertisements. Along with tracking money and calculating expenditures, it should also maintain track of the billboards' upkeep operations.
- 4. Social Media Adverts Management:** Online advertisements should be created and managed by the software on social media sites like Facebook and Instagram. It should keep track of all pertinent data, such as the campaign's dates, materials, costs, technical staff, and revenue..
- 5. TV and Radio Adverts Management:** The software should manage advert campaigns on TV channels and radio stations. It should store contacts of TV and Radio stations, and special agencies that can create the advert TV and Radio material.
- 6. Employee Management:** the software should manage employee financial information, including salaries, cost, and taxes.
- 7. Management Reports:** The software should generate full reports on consumer campaigns and other pertinent financial data, including payments from customers, costs, and revenue. Additionally, it should generate reports with thorough financial data on billboards, such as revenue and maintenance costs.

- 8. Customer Portal:** Customers should be able to use the software to register online, make preliminary campaign plans, pay online, check their financial state, and track the specifics of and progress on their campaigns using smartphones. Additionally, the customer can extend the advertising period or renew their subscription..
- 9. Integration:** The software should provide integration with other business systems, including inventory control, accounting, and other relevant systems.
- 10. Choosing advertising supplements:** Customers who use this service are given the opportunity to determine the characteristics of their campaign, including the target audience and their interests, as well as suggested positions, sites, and times that fit the nature and purpose of the campaign and are crucial to its success.
- 11. Monitoring ad performance:** Providing details about campaign results and rates of arrival, participation rate and evaluation by categories, as well as the possibility of evaluation by the campaign owner.
- 12. Ad model:** The possibility of presenting several incomplete and initial small models based on the given campaign details to allow the customer to choose the appropriate type of campaign and evaluate each model, so that employees work on the highest rated model.
- 13. Ad creation tools:** Allow the customer to create the ad for their campaign by providing them with template options, stock photos and videos, editing tools, and attaching their ad after it is ready to be published.
- 14. Steps to approve the advertisement:** To ensure that the process proceeds properly and according to the company's policy without harm to both parties, this service will provide several tasks and steps to obtain approval before publishing the campaign.
- 15. Communication feature:** It allows communication between employees about divisions of work and with different powers according to the work rank, also between employees and customers as two types of communication, the first is cognitive communication to answer their general inquiries, and the other is to follow up on the progress of the campaign.
- 16. Payment Processes:** Availability of payment methods in general to customers within clear and detailed reports and invoices.

17. Promotions: The possibility of identifying the golden customer based on the data to give him unique services and discounts, each according to his rank.

As for the non- functional requirements:

1. Maintainability: Maintainability is crucial for Golden Adverts to ensure that the system can adapt to the changing needs of the business and the advertising industry. This involves designing the system with a modular architecture, well-documented code, and automated testing and debugging tools to identify and fix issues quickly. Additionally, having a support team to assist users and address technical issues is important.

2. Efficiency and Scalability: As for non-functional requirements, efficiency is one the most important attribute that must be present in our system, since avoiding wasting time, money and resources is a priority. Moreover, our software system will have the attribute of scalability, they both will have an excellent performance of serving more than 1000 user at the same time and both systems will have a response time of 99%.

3. Usability and acceptance: The application must be usable and acceptable to users and employees, because employees in the company are increasing rapidly, so it is difficult to waste time training them on the system, also the general customers will use it, and if it is difficult to use, this does not encourage them to use it or agree with the company.

Software Development Process

Incremental software development process will be used in this project due to the possibility to change the project's requirements or gaining a clearer vision with time. In addition, feedback is needed in this type of project during the whole development process to add more enhancements to the project. Having a special employee for each client to follow up with them will help in the continuity of the process incrementally and follow up the progress of the project along the development process to gain feedback, make enhancements and add new features.

This development process will lead to incremental planning for this project and deliver it incrementally. The project will be divided into sprints (2 weeks for each). Each sprint consists of several levels including understanding the business domain and collecting requirements, design, implementation, test, integration and the final system test and integration to gain a real software part at the end of each iteration. At the end of each iteration, a meeting will be held to take feedback from the client. The sprints with the highest priority and highest business value will be worked on first.

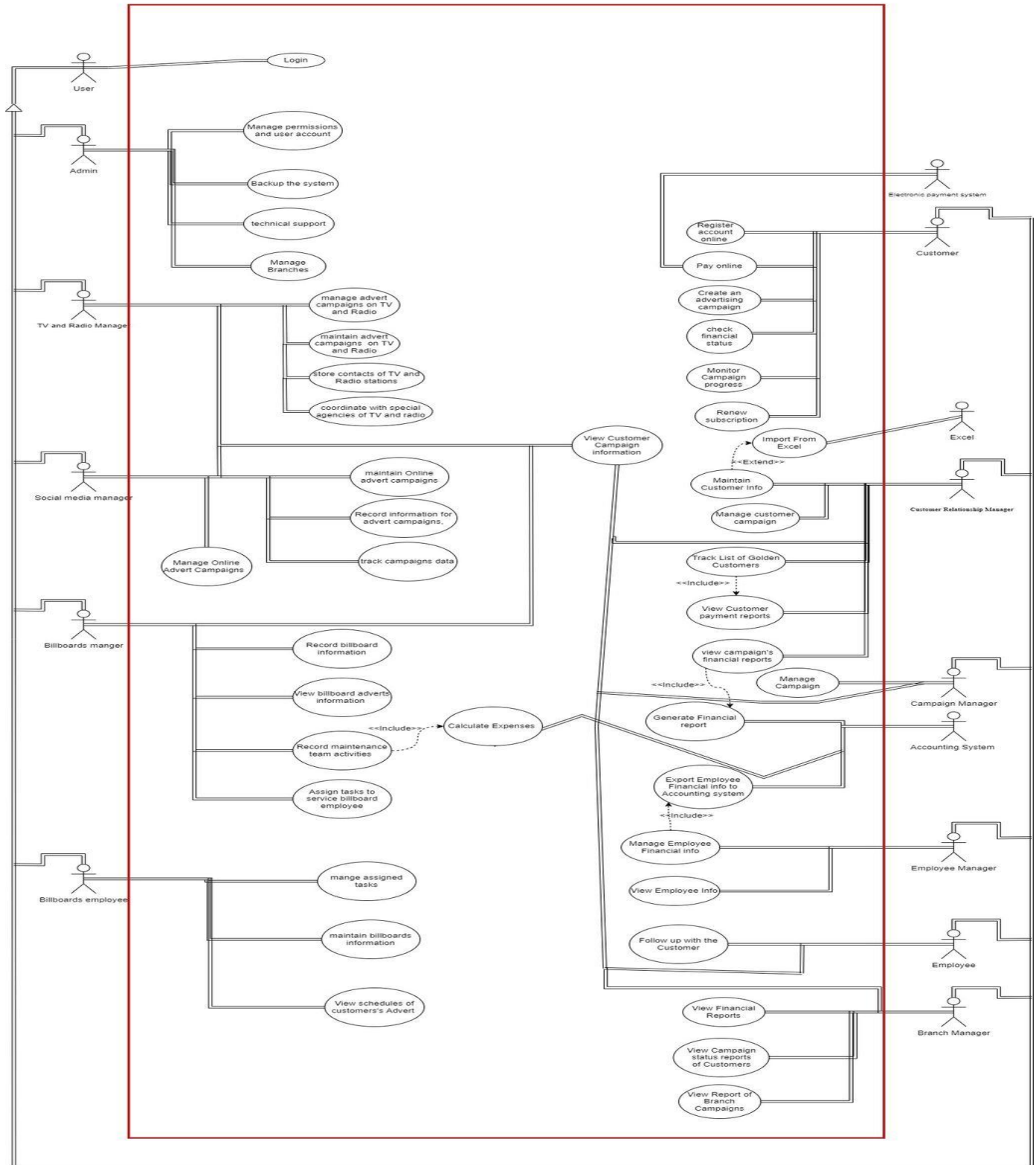
The project will be delivered incrementally as releases (3 releases). The first two releases will contain the main features of the project and the last release will contain additional features and improvements on the main features.

The first release will contain the main features such as registering for the advertising campaign using the portal to allow the customer to register their advertising campaign, and the management system for each department (business, billboard, social media, and TV and radio department) to record needed information and show reports for each department. The second release will contain detailed financial information reports (accessed data by the management department) for customer's campaign and employees that need integration with an accounting system, and features for tracking the progress of the campaign by the client through the portal using a personal computer or by smartphone. The third release will contain enhancements to the previous features, and some unique features for golden customers that are additional such as special discounts and other special services.

For projects with similar requirements, the reuse-oriented method can be combined with the incremental software process. Ready-made blocks can be used in agreement with the client, with modifications and additions to them.

Use Case Diagram

AdverttechSoftware System for Golden Adverts



Actors

Here are the list of actors:

- Customer Relationship Manager.
- Campaign Manager.
- Excel (Integrated System).
- Accounting System (Integrated System).
- Branch Manager.
- Billboard manager.
- Billboards employee.
- TV and Radio Manager.
- Social Media Manager.
- Admin.
- Customer.
- Employee.
- Employee Manager.
- User.
- Electronic payment system.

Use case Diagram Description

Actor 1: Customer Relationship Manager: This actor represents the person responsible for managing all customers' management needs.

1.1 Maintain Customer Information:

The system shall maintain all customer information (add/update/delete) as records contain full customer's information.

1.1.1 Import from Excel (extend):

If there are existing data with Golden Adverts Company, the system shall import them from Excel spreadsheets.

1.2 View Customer Campaign Information:

The system shall allow the customer relationship manager, campaign manager, employee, branch manager, billboard manager, social media manager and TV and radio manager to view customer campaign's information based on their needs.

1.3 Track List of Golden Customers:

The system shall reserve a list of golden customers to give them special treatment.

1.4 View Customer Payment Reports:

The system shall allow customer relationship manager to view customer payment reports.

1.5 View Campaign's Financial Report:

The system shall allow the customer relationship manager to view the financial report of each campaign (cost, expenses, revenue, etc.).

1.5.1 Generate Financial Report (include):

The system shall generate a campaign's financial report using the accounting system to calculate campaign's revenue, total expenses, etc.

Actor 2: Campaign Manager: This actor represents the person responsible for managing customer's campaign/campaigns throughout the duration of the campaign.

2.1 Manage Customer Campaign:

The system shall allow the campaign manager to manage each campaign based on its type and needed information for it.

Actor 3: Excel (Integrated System): This actor represents an integrated system that interacts with the system to allow exporting spreadsheets from Excel.

Actor 4: Accounting System (Integrated System): This actor represents an integrated system that interacts with our system to allow generating financial reports.

Actor 5: Branch Manager: This actor represents the person responsible for managing all reports and campaigns related to the branch.

5.1 View Financial Reports:

The system shall allow the branch manager to view all financial reports of the branch and its related campaigns.

5.2 View Campaign's Status Report:

The system shall allow the branch manager to view the status of the campaign to know if it is completed or in progress and at what stage the campaign is.

5.3 View Branch Campaigns' Reports:

The system shall allow the branch manager to view reports of all campaigns related to that branch.

Actor 6: Billboard manager: This actor represents the person responsible for managing all Billboards department needs.

6.1 Assign tasks to service billboard employee:

The system shall send tasks (update new adverts, remove old adverts, maintain billboard) to the service billboard employee.

6.2 Record maintenance team activities:

6.2.1 The system shall view all maintenance team activities information (Date, location, cost, information about the team that was sent in for the repair (action including calculating this Expenses will be calculated using the accounting manager.

6.2.2 The system shall calculate expenses that were taken from the previous report.

6.3 Record billboard information:

The system shall record all billboard information (place, size, current advert, list of past adverts, list of adverts on waiting list.

6.4 View billboard adverts information:

The system shall allow billboards manger to view information about the adverts (name of customer, name of campaign, place of the billboard, starting date, finishing date, cost).

Actor 7: Billboards employee: This actor represents the person who works at the billboards department.

7.1 Manage assigned tasks:

The system shall send the assigned tasks that are taken from billboards manager to the billboards employee (update new adverts, remove old adverts, maintain billboard).

7.2 Maintain billboards information:

The system shall record all maintenance team activities information (Date, location, cost, information about the team that was sent in for the repair).

7.3 View schedules of customer's Advert:

The system shall allow the billboard employee to view all schedules of a customer's Advert (name of customer, name of campaign, Date of start, Date of finish, list of past adverts, list of adverts on waiting list, current advert).

Acto 8: TV and Radio Manager: This actor responsible for overseeing and managing advertisement campaigns on TV channels and radio stations and ensuring the successful execution and coordination of advertising activities.

8.1 Manage Advert Campaigns on TV and Radio: The system shall managing advertisement campaigns by planning, scheduling, and execution of these campaigns, ensuring they align with target audience.

8.2 Maintain Advert Campaigns on TV and Radio: The system shall maintaining the advertisement campaigns by tracking the progress of campaigns, ensuring their timely delivery, and addressing any issues or changes that arise during the campaign period.

8.3 Store Contacts of TV and Radio Stations: The system shall maintains a database of contacts such as station names, contact persons, contact details, etc.

8.4 Coordinate with Special Agencies of TV and Radio: The system shall allows coordinating with agencies responsible for developing high-quality TV and radio adverts, ensuring the timely delivery of materials, and providing necessary feedback and guidance.

Acto 9: Social Media Manager: This actor is responsible for managing and overseeing online advertising campaigns on social media platforms to reach the target audience and achieve campaign objectives.

9.1 Maintain Online Advert Campaigns:

The system shall ensure that the campaigns are running smoothly, track their progress, and make necessary adjustments.

9.2 Record Information for Advert Campaigns:

The system shall records all relevant information for each advert campaign such as campaign details, dates, materials, costs, target audience, etc.

9.3 Track Campaigns Data:

The system shall tracks and analyzes data. This includes metrics such as reach, engagement, click-through rates, conversions, and other key performance indicators.

9.4 Manage Online Advert Campaigns:

This includes planning the campaign strategy, creating and scheduling content, monitoring ad placements, targeting specific audiences, and optimizing campaign settings.

Actor 10: Admin: This actor manages user permissions and technical support in case of any problems, and manages branches and Backup the system.

10.1 Manage permissions and user account:

The system allows the administrator to control the permissions allowed to users and the limits of using the system.

10.2 Backup the system:

The system allows the data of the entire system to be stored in special places as a copy to keep it from being lost, and the admin can dispose of it and control it.

10.3 Technical support:

The system must allow the administrator to track and support technically the users and employees who deal with the system.

10.4 Manage Branches:

The system allows admin access to information and management of branches.

Actor 11: Customer: This actor represents the customer who will be involved in the system in order to manage his media campaigns.

11.1 Register account online:

The system allows the customer to create account on the system through a website and control his account information.

11.2 Create an advertising campaign:

The system allows the customer to create his own advertisement and enter all information related to the advertisement to be published.

11.3 Pay online:

The system gives the customer the option to pay online using his credit card or any form of electronic payment.

11.4 Check financial status:

The system allows the customer to check the financial situation of his advertising campaign and what he needs in order to complete his campaign financially.

11.5 Monitor Campaign progress:

The system gives the customer the ability to monitor the progress of his advertising campaign and give him a summary of the progress that has been achieved.

11.6 Renew subscription:

The system gives the user the option to renew his subscription when his subscription is about to expire in order to continue the advertisement publishing process.

Actor 12: Electronic payment system: This actor expresses the system that is handled in the customer's payment operations.

Actor 13: User: this actor deals with the system and he has an attribute that it inherits to all other actors.

13.1 Login:

The user shall login in the system from an interface in the website.

Actor 14: Employee Manager: This actor acts as a liaison between employees and the company and he also supervises all employees in this company.

14.1 View Employee info:

The system allows the employee manager to see information about every employee in the company.

14.2 Manage Employee Financial info:

The system allows the employee manager to process the employees' payroll, as it collects financial information for them such as bank account details and salary or wages information.

Actor 15: Employee: This is the one who deals directly with the customer, as he provides services to him.

15.1 Follow up with the Customer:

The system allows the employee to deal with the client, tracks matters with him, assists him, and provides services to him in the company.

Non-fucntional requirements

- 1) **Maintainability:** Maintainability is crucial for Golden Adverts to ensure that the system can adapt to the changing needs of the business and the advertising industry. This involves designing the system with a modular architecture, well-documented code, and automated testing and debugging tools to identify and fix issues quickly. Additionally, having a support team to assist users and address technical issues is important.
- 2) **Efficiency and Scalability:** As for non-functional requirements, our software system will have the attribute of scalability, they both will have an excellent performance of serving more than 1000 user at the same time and both systems will have a response time less than 2 seconds.
- 3) **Usability and acceptance:** The application must be usable and acceptable to users and employees, because employees in the company are increasing rapidly, so it is difficult to waste time training them on the system, also the general customers will use it, and if it is difficult to use, this does not encourage them to use it or agree with the company, new customer users need training time about half an hour, and the new employee users need training time about one hour.
- 4) **Compatibility:** the system shall be compatible with other systems such as Excel, Accounting System and Electronic payment system to import and export data.
- 5) **Reliability:** There is about the system the ability not to occur error and can be relied upon, the system shall fall down once time every 6 month, and the maximum time to recover is about fifteen minutes.
- 6) **Security:** Customer's data shall be protected from data leakage, also credit cards shall be protected from stealing information.

Use case Scenarios:

1. Track a List of Golden Customers – Ayah Salamah 1190418:

INITIAL ASSUMPTION: The customer had registered to the system and paid online to start a campaign or already had a campaign in progress. The customer relationship manager is logged into the system and is tracking a list of golden customers; where golden customers are customers with total payments exceeding 15,000\$ (assumed, could be changed based on company decisions).

NORMAL FLOW:

- 1) The customer relationship manager chooses the menu option to view all customers' total payments with their names.
- 2) The customer relationship manager chooses the option to order customers in descending order based on their total payments.
- 3) The customer relationship manager then adds the minimum total payments amount (15,000\$) as a free text, where all customers with payments more than 15,000\$ are golden customers.
- 4) The customer relationship manager then copies the ordered list of golden customers that appears after choosing all needed options.
- 5) The customer relationship manager then keeps the ordered list of golden customers in the golden customers' file and saves it to the system's data store.

ALTERNATIVES:

- 1) There is no customer with payments of more than 15,000\$, a message showing that there are no golden customers in the company appears and nothing is added to the data store.
- 2) Two or more customers have the same amount of payments while ordering customers based on their total payments. These customers are arranged based on their names in alphabetical order within the golden customers list, which is arranged according to the total payments.
- 3) A previous list of golden customers had been already generated but with different names, the customer relationship manager chooses the option to update the list and then chooses the option to save it to the data store.

OTHER ACTIVITIES:

- Any other staff rather than the customer relationship manager cannot modify the golden customers list. However, the total payment amount that determines the golden customers can be consulted.

ERROR:

- A previous list of golden customers had been already generated but with the same names, which means that the golden customers did not change. A message showing that there are no changes in the golden customers list appears and nothing is added to the data store.

SYSTEM STATE ON COMPLETION:

- The golden customers list (of customers with payments of more than 15,000\$) that contains customers names and their total payments is added to the data store. A system log record is added to show the time of the session.

2. Manage Employee Financial info – Laith Ghnemat 1200610:

INITIAL ASSUMPTION: The employee manager creates a record in the system to efficiently manage and maintain financial information related to its employees. This scenario demonstrates the requirements for managing employee financial data, ensuring accuracy, security, and compliance with relevant regulations.

NORMAL FLOW:

- 1) The employee's manager searches for the employee by the family name, then the first name (if the family name is repeated) and the date of birth if necessary to identify the employee.
- 2) The employee manager can securely enter and update employee financial information.
- 3) The employee manager can securely enter and update employee financial information.
- 4) Employee manager must be able to deduct taxes, insurance premiums, retirement contributions, and other related deductions from employee payroll.
- 5) The system must support various payment methods, such as direct deposit, checks, or wire transfers, and generate payment instructions accordingly.
- 6) The system shall enforce strict security measures to protect employees' financial data, and access to the system shall be restricted to the employee's authorized manager and other designated employees.
- 7) The system must implement encryption, access controls, and data backups regularly to ensure the confidentiality and integrity of employees' financial information.

ALTERNATIVES:

1. The employee record does not exist or cannot be found. The employee manager must create a new record and record personal and financial information.
2. If the employee entered the wrong password, there should be a notice "He entered the wrong password, please try again".

OTHER ACTIVITIES:

- The record can be consulted but not edited by other employees while entering financial information.

ERROR:

1. Entering incorrect or accurate financial data, which leads to errors in salary calculations.
Strong verification processes must be implemented to ensure that only correct and accurate financial statements are accepted by the system.
2. Unauthorized Access to Employees' Financial Data Unauthorized users must not be allowed to access sensitive financial information of employees.

3. Create an advertising campaign– Jihad Hamayel 1200348:

INITIAL ASSUMPTION: A customer watched the company's website, so he registered an account on the site for the purpose of creating an advertising campaign, so he watched the offers and advantages that the company offers from advertisements to customers and the extent of the success of the advertisements, so the customer created an advertising campaign to help him in marketing his advertising campaign and entered his campaign information.

NORMAL FLOW:

1. The customer begins to enter information about his advertising campaign, which is the name of the campaign, the target class of this advertisement, which category of this advertisement, and agreement on the start and end date of the advertisement, and where he wants to display his advertisement (target places) and the technologies to be used in his campaign.
2. After that, an agreement is made on the cost of the advertisement, according to the information related to the campaign
3. It is possible for the customer to receive assistance from the business department in order to take the full benefit because of their experience in this field.

ALTERNATIVES:

1. The customer entered his campaign information, but there was a problem with the time to publish his advertising campaign, as it was reserved by another advertising campaign. In this case, other times are suggested to him that may be suitable for him and satisfy the customer. If the proposal is rejected, the registration and the rest of the steps are not completed.
2. The customer chose a specific technology to advertise his campaign, but this technology was facing a malfunction or was in the process of development, so it cannot be used at the present time. Above it, other technologies are suggested to him, or he waits until the completion of the technology development if the time is close, and if the time is large, the customer has the choice to finish creating the campaign or choose another technique.

OTHER ACTIVITIES:

- It is possible to refer to the advertising campaign information and display it to the customer, but it cannot be modified because it is the job of a person responsible for advertising campaigns and asking for his permission in the event that the customer wants to modify something within the permissible limits, and in the event of any change occurring, the agreement must occur in the subscription.

ERROR:

1. The customer entered incorrect information in terms of matching the target group and the content of the advertising campaign. When this thing happens, the customer is warned that this contradicts the company's policies.
2. In the event that incorrect information is entered, the user is alerted that the information contains an error, such as entering numbers somewhere where text is required.

SYSTEM STATE ON COMPLETION:

- The customer's advertising campaign information has been recorded, including the details of the campaign, and the campaign information is added to the system records, showing the date of its start and end and the employee responsible for the campaign.

4. View Campaigns Financial Reports – shahd hassouneh 1190618:

INITIAL ASSUMPTION: The customer relationship manager wants to see Customer Campaigns' financial report that generated by accounting system.

NORMAL FLOW:

1. The system presents a menu of available reports, the customer relationship manager selects customer campaigns financial report.
2. The accounting system asks about the desired campaign by campaign's name or customer name.
3. After choosing the campaign the system asks about the desired period for the report, such as a specific month or year.
4. Then the customer relationship manager enters the period.
5. The system imports all data of this campaign in this period from a database then generate the report
6. The customer relationship manager reviews the report, which have detailed information on customer payments, costs, revenue.

ALTERNATIVES:

1. The customer relationship manager entered a non-existent campaign.
2. In this case the customer relationship manager should get in touch with the relevant departments to guarantee the data's accuracy and completeness.
3. Ahmad enters a period that there's not a campaign for the desired campaign in it, in this case the system should display a warning message or then suggest options to the customer relationship manager, such as proposing similar campaigns in the same periods or recommend alternative advertising channels that may be suitable for the desired campaign objectives, or it suggests campaign names similar to the desired campaign.

OTHER ACTIVITIES:

- It's possible to share the Report with relevant stakeholders, like client, the report may be exported as PDF or Excel, also it's possible to save and archived it ,and only a specific users can edit it ,most users only can see it .

ERROR:

1. The customer relationship manager entered a wrong type of data like enter numbers instead of texts, in this case a warning message will disappear to enter the correct type.
2. The customer relationship manager requests report information with unfilled data, in this case also a warning message will disappear to enter the required information.

SYSTEM STATE ON COMPLETION:

- User is logged on, The report was viewed for the desired Campaign in the desired period the report display all financial information (customer payments, costs, revenue).

5. Online Advertising Campaign Management – Arwa Doha 1190324:

INITIAL ASSUMPTION: Golden Adverts has implemented the Online Advertising Campaign Management software and trained their staff on its usage. The system is up and running, and the team is ready to start managing online advertising campaigns.

NORMAL FLOW:

1. The Campaign Manager accesses the system and creates a new campaign for a client, providing campaign objectives, target audience, and budget.
2. The Campaign Manager selects the preferred social media platforms and defines the campaign's start and end dates.
3. The Social Media Manager receives the campaign details and initiates the creation of captivating advertisements, incorporating relevant visuals and engaging copy.
4. The system automatically tracks and monitors the campaign's performance metrics, including impressions, clicks, and conversions.
5. The Social Media Manager regularly monitors the campaign's progress using the system's analytics dashboard, making necessary adjustments for performance optimization.
6. The system generates real-time reports containing essential campaign metrics and financial information, accessible to the Campaign Manager and Management Department.
7. The Customer utilizes the customer portal to monitor the campaign's performance, financial status, and receive updates from Golden Adverts.
8. Effective communication takes place between the Campaign Manager, Customer, and Golden Adverts through the system, addressing queries and providing feedback.

ERROR:

1. Technical issues or system downtime may disrupt campaign management and reporting.
2. Incorrect targeting parameters or ad settings could result in ineffective campaign delivery.
3. Inadequate ad performance could lead to dissatisfied customers and reduced campaign success.

OTHER ACTIVITIES:

1. The Campaign Manager may collaborate with the TV and Radio Manager to integrate offline and online advertising efforts for cohesive campaigns.
2. For strategic planning, the Social Media Manager can use the program to examine competition efforts and market trends.
3. The software's financial reports can be used by The Management Department to assess the profitability and success of campaigns.

SYSTEM STATE ON COMPLETION:

1. The Online Advertising Campaign Management software keeps accurate records of all campaigns, their performance, and financial data.
2. Campaign data is safely kept and accessible.
3. Customers may analyze their campaign history and make educated judgments about future advertising efforts.