Requirements Document: Influencer - Marketing Analysis System

1. Introduction

1.1 Purpose:

This report aims to clearly define the project requirements for a system that measures the advertising performance of influencers for e-commerce companies and to guide the development process.

1.2 Scope:

The system will provide employees in various positions within an e-commerce platform with clear information about the most liked products by the customer base, the most profitable or preferred product categories, the success rate of advertising campaigns, the effectiveness of each influencer in different categories, profit margins, and sales performance. This will enable decision-makers on the platform to make smarter, data-driven decisions and maximize their return on investment.

1.3 Scenario (Case):

BrandX decides to collaborate with influencers on Instagram to promote its new season products. Selected influencers recommend specific products to their followers. By using discount codes or referral links in their posts, influencers direct users to BrandX's website.

The system automatically records which customer was referred by which influencer. This allows the analysis of which influencer drives more traffic and how customer conversion rates vary. When a customer clicks on an influencer's link, they are redirected to BrandX's site, where they can view detailed product information including price, stock, and reviews.

The Product Manager ensures that the products are entered into the system with correct visuals, price, and stock info, along with detailed descriptions and category tags.

Once a purchase is completed, the system records the customer's purchase details and tracks how the customer arrived at the product. This enables analysis of how influencer referrals convert into actual sales.

Analyst users analyze this collected data to evaluate conversion rates, sales increases, and influencer effectiveness. Thus, campaign success is evaluated based on data.

BrandX wants to measure influencer performance throughout the campaign. The system tracks the total number of customers referred by each influencer, how many completed purchases, and how much revenue was generated by each influencer during the campaign.

The Campaign Manager plans and manages the campaigns—setting dates, budgets, and defining the included products and influencers in the system.

Additionally, the system analyzes the average spending amount of customers referred by influencers. This data is used to determine which influencers should receive more budget in future campaigns.

The Influencer Manager handles the influencer portfolio, including adding new influencers, terminating collaborations, and adjusting commissions. This role ensures higher-performing influencers receive greater investment.

At the end of the campaign, the company can view detailed reports generated by the system to see how much sales each influencer generated and which products attracted the most attention. Analyst and Campaign Manager roles evaluate these reports together.

After a purchase, the delivery process begins. To better analyze customer experience, the system records satisfaction surveys and feedback. If a customer returns a product, the return is tracked, and the system analyzes which influencer referrals led to more returns.

The Finance Manager evaluates influencer payments and profitability while taking return rates into account. Payments to influencers are calculated based on performance—referrals, sales, and return rates. After payments are completed, the system calculates the total budget spent and ROI, and generates a report. These tasks are managed by the Finance Manager.

All coordination and access control are managed by the Admin role, which creates user accounts, assigns roles, and adjusts system security settings.

1.4 Summary and Conclusions:

Thanks to this system, BrandX will be able to manage influencer collaborations more efficiently and optimize its marketing strategy with data. The company will be able to allocate advertising budgets based on which influencers drive more sales, giving priority to those with higher ROI. The role-based workflow within the system also facilitates governance and task distribution. This scenario offers a concrete model for how e-commerce companies can optimize influencer collaborations.

1.5 Target Audience:

• **Software Development Team:** Engineers responsible for system design, development, and integration.
• **QA Engineers:** Quality assurance experts testing system performance, accuracy, and reliability.
• **Product Managers:** Individuals defining requirements and ensuring alignment with business goals.
• **Stakeholders (E-commerce managers, Marketing teams, Influencer managers, Finance department):** Decision-makers analyzing campaign performance, planning budgets, and calculating ROI.

2. General Overview:

The system will offer the following features to help e-commerce companies analyze the financial success of social media influencer campaigns:

- **Tracking payments made to influencers:** Who was paid and how much will be recorded.
- **Measuring sales conversions:** The amount of products sold via influencer promotions.
- **Analyzing return rates:** How many sold products were returned.
- **Calculating profit-loss ratios:** Comparing money spent vs. earned.
- **Calculating campaign-based ROI:** Determining the value gained from each 1 TL spent.
- **SQL-based data analysis and graphical reporting:** All data will be visualized for easy interpretation of influencer performance.

3. User Roles and Permissions:

User Type	Permission
Analyst	Access all statistical data, download performance metrics and reports.
Product Manager	Add/delete products, edit product info, price, and stock.
Campaign Manager	Create campaigns, manage influencers and products, edit budget and schedule.
Influencer Manager	Add/delete influencers, adjust commissions.
Finance Manager	Access all financial and payment data, make and manage payments.
Admin	Full system control: adjust settings, user roles, and access all data.

4. Functional Requirements:

FR-01	Upon request, the admin creates new user accounts within the company.
FR-02	Admin must be able to assign roles to users.
FR-03	Product managers can access data about products and sales.
FR-04	Product Manager must be able to add new products to the system.
FR-05	Product Manager must be able to edit product information, price, and stock details in the system.
FR-06	Campaign Manager must be able to create new campaigns and edit the campaigns.
FR-07	The Campaign Manager must be able to stop active campaigns.
FR-08	Campaign Manager must be able to define campaign dates and budgets.

FR-09	Campaign managers must be able to access data and reports related to past campaigns and influencer performance.
FR-10	Campaign managers must be able to edit the products included in the campaign.
FR-11	Campaign managers must be able to edit the influencers involved in the campaign.
FR-12	Influencer managers can access data and reports related to influencer performance.
FR-13	Influencer Manager must be able to add new influencers to the system and delete existing ones.
FR-14	The system must be able to track the number of customers referred by each influencer.
FR-15	The system must analyze whether referred customers completed a purchase.
FR-16	The system must record through which influencer each customer was referred.
FR-17	The system must be able to collect user feedback and satisfaction surveys.
FR-18	The system must record product return data and perform influencer-based analysis.
FR-19	Users with the Analyst role must be able to analyze all data and download reports.
FR-20	Finance Manager must be able to perform payment transactions through the system.
FR-21	Finance Manager must be able to view payment reports through the system.
FR-22	The system must generate detailed reports using all data at the end of a campaign.
FR-23	The system must identify which influencer link each customer used to reach the site.
FR-24	The system must include product, date, and budget details in the campaign record for each campaign.
FR-25	The system must be able to analyze the average spending amount of customers referred by influencers.
FR-26	The system must log user activities within the system.
FR-27	The system must calculate payments by matching sales, returns, and referral data per influencer.
FR-28	Finance Manager must be able to define payment dates through the system.
FR-29	Finance Manager must be able to define and edit influencer budgets.
FR-30	After payments are completed, the system must report the total spending and ROI ratio.

FR-31	Admin must be able to configure all user and system settings and access all data.
FR-32	The system must analyze the sales performance of products included in campaigns.
FR-33	The system must report the number of returns per influencer caused by their referrals.
FR-34	The system must generate graphical analysis outputs based on SQL queries.
FR-35	The system must analyze user feedback by matching it with products and influencers.

5. Non-Functional Requirements:

NFR-01	The system must support at least 200 concurrent users.
NFR-02	All queries and reports must complete in under 7 seconds.
NFR-03	User data must be stored with AES-256 encryption.
NFR-04	The application must be fully compatible with both mobile and desktop browsers.
NFR-05	Weekly full and daily incremental database backups must be implemented.
NFR-06	The UI must comply with WCAG 2.1 accessibility standards.
NFR-07	A caching mechanism (e.g., Redis or Memcached) must be used for frequent queries.
NFR-08	There must be logging and error tracking systems to detect and resolve issues.
NFR-09	The system must run over HTTPS and support secure authentication methods (OAuth2, JWT).

6. Constraints:

C-01	Analysts may only observe data, not update it.
C-02	Product managers cannot access data beyond products and sales.
C-03	Campaign managers can manage only up to 10 campaigns within 2 weeks and stay within defined budgets.
C-04	Campaign managers can edit only the campaigns they created.
C-05	Influencer managers can edit only the influencers they added.
C-06	Only Admin can change system settings and user roles.
C-07	Influencer commissions can only be adjusted within a predefined range.
C-08	Product managers can add products only under existing categories.

C-09	Campaign managers must choose influencers from the system pool.
C-10	Finance managers can update sale statuses but not delete sales data.
C-11	Finance managers cannot process payments that exceed the campaign budget.
C-12	Users can only act within defined roles.
C-13	Currency is limited to Turkish Lira (₺).
C-14	Campaign data cannot be edited retroactively.
C-15	Each user can access only authorized data.
C-16	External payment systems are not integrated.
C-17	Only Admins can change system settings.
C-18	Data analysis must use internal database only.

7. Data Management:

• **DBMS:** PostgreSQL
• **Data Structure:** Relational database (RDBMS) to ensure data integrity

Tables:
- **Customers** (customer_id, customer_name, customer_mail, customer_phone, customer_address, channel, since, is_account_deleted)
- **Products** (product_id, stock_quantity, category, sales_quantity, description, product_price, on_sale)
- **Influencers** (influencer_id, influencer_name, platform, follower_count, clicked_number, category, influencer_mail, still_partner, member_since)
- **Users** (user_id, user_role, user_mail, user_name, user_password, is_active, member_since)
- **Campaigns** (campaign_id, campaign_name, start_date, end_date, budget)
- **Arranges** (product_id, influencer_id, user_id, campaign_id)
- **Adjusts** (user_id, product_id, date_time, is_active, field, old_value, new_value)
- **Bought_By** (product_id, customer_id, status, channel, rating, quantity, bought_date)
- **Payment** (campaign_id, influencer_id, amount, status, campaign_date)
- **Liked_By** (customer_id, product_id, channel, liked_date)

8. Risks:

• **Performance issues due to high traffic:** Mitigated by caching (Redis), indexing, and load balancing
• **Security vulnerabilities & data leaks:** Mitigated by strong authentication, encryption (AES-256), and access logs
• **Data loss or corruption:** Mitigated by automatic backups and disaster recovery plans
• **Incorrect campaign/payment data:** Mitigated by data validation and authorization controls

9. Deliverables & Timeline:

Deliverables	Timeline
Requirement Analysis	2 weeks
Database & Architecture Design	3 weeks
UI/UX Design	3 weeks
Backend & API Development	6 weeks
Caching & Performance Optimization	2 weeks
Testing Phase	3 weeks
User Testing & Feedback Evaluation	2 weeks
Deployment & Maintenance	Ongoing