You are a software engineer working in the Information System department to support the Purchasing Business Unit of Express Parts (EP) Corporation. You are supporting a new purchasing system named **ePurchase**, which interfaces to EP's Inventory Management (IM) System and Accounts Payable (AP) Systems.

Your software engineering team has been assigned to analyze business requirements and develop prototypes of some of the functions of the new system prior to its implementation. It is very important that the *ePurchase* system is highly effective, secure, robust and accessible only by authorized employees. All authorized actors of the new *ePurchase* system must able to access the system 24x7.

The company's mission is to maintain customer satisfaction by shipping the right products to customers on time. Within the next six months, senior executives at Express Parts would like to replace our current mainframe-based procurement system with a more robust and highly secure system and align it with other object-oriented application systems in our company.

The *ePurchase* system must provide all functions for our procurement director, authorized buyers and managers. They need to monitor purchasing activities and inventory levels and to replenish the inventory when an item's quantity-on-hand is below a minimum level.

For each physical item to be purchased and received in our warehouse, a buyer must define/create it (i.e. define it's corresponding logical item) in the item master. Each item contains a unique item number, description, minimum order quantity, purchase price, effective date, and preferred vendor.

An item can be purchased from one of our preferred vendors. A buyer must be able create a vendor before he/she issues a purchase order to buy items from that vendor. A vendor has a unique vendor ID, vendor name (this is a company name), corporate address (street, city, zip code, country) where the purchase order is sent, contact person (first name and last name), phone number and email address of the contact person.

A buyer must be able to run a periodic inventory report where he/she specifies a date range, such as from February 1, 2019 to February 28, 2019. In addition, he/she must be able to specify the sort criteria such as sort by item number, by vendor, or by quantity on hand (low to high, or high to low). We need your help to design a useful report for our buyers.

When a buyer issues a purchase order, he/she must be able to select items previously defined in the item master, a preferred vendor, purchase quantity, unit of measure (each, dozen, box, others) and purchase price. A purchase order may contain multiple items to be purchased from a vendor. In addition, the buyer must be able to optionally add comments on a purchase order. If the total purchase order amount is $1,000.00 or more, the buyer must submit the purchase order to an appropriate procurement manager, who can approve it. A buyer is authorized to approve a purchase order with an amount less than $1,000.00.

With the new *ePurchase* system, our company's procurement director must be able to create accounts for authorized buyers and procurement managers and set their purchasing limit for approval. The buyers and managers then use their account to log into the new system. In addition, the new *ePurchase* system must enable the procurement director and procurement managers to run a procurement activity report to help him/her analyze purchasing activities and to assist with cash flow analysis. We will rely on you to design and create a prototype of this report for the procurement director and procurement managers to preview and approve.

In addition, our buyers must be able to submit one or more purchase orders with an "Approved" status to the associated vendors and receive an email confirmation that the orders have been submitted. Once the purchase orders are submitted, our Accounts Payable (AP0 and Inventory Management (IM) systems must be notified of the submitted purchase orders.