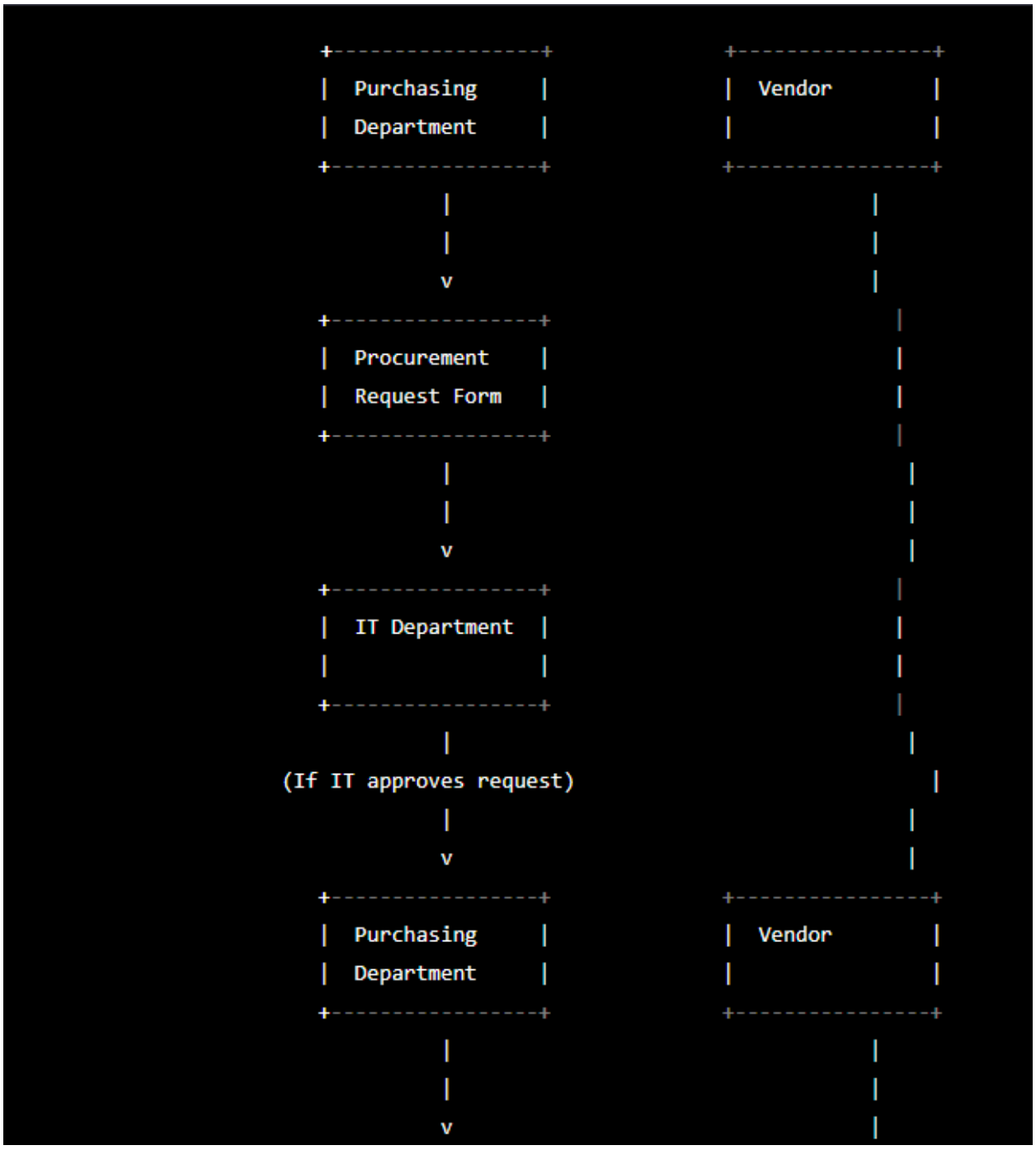
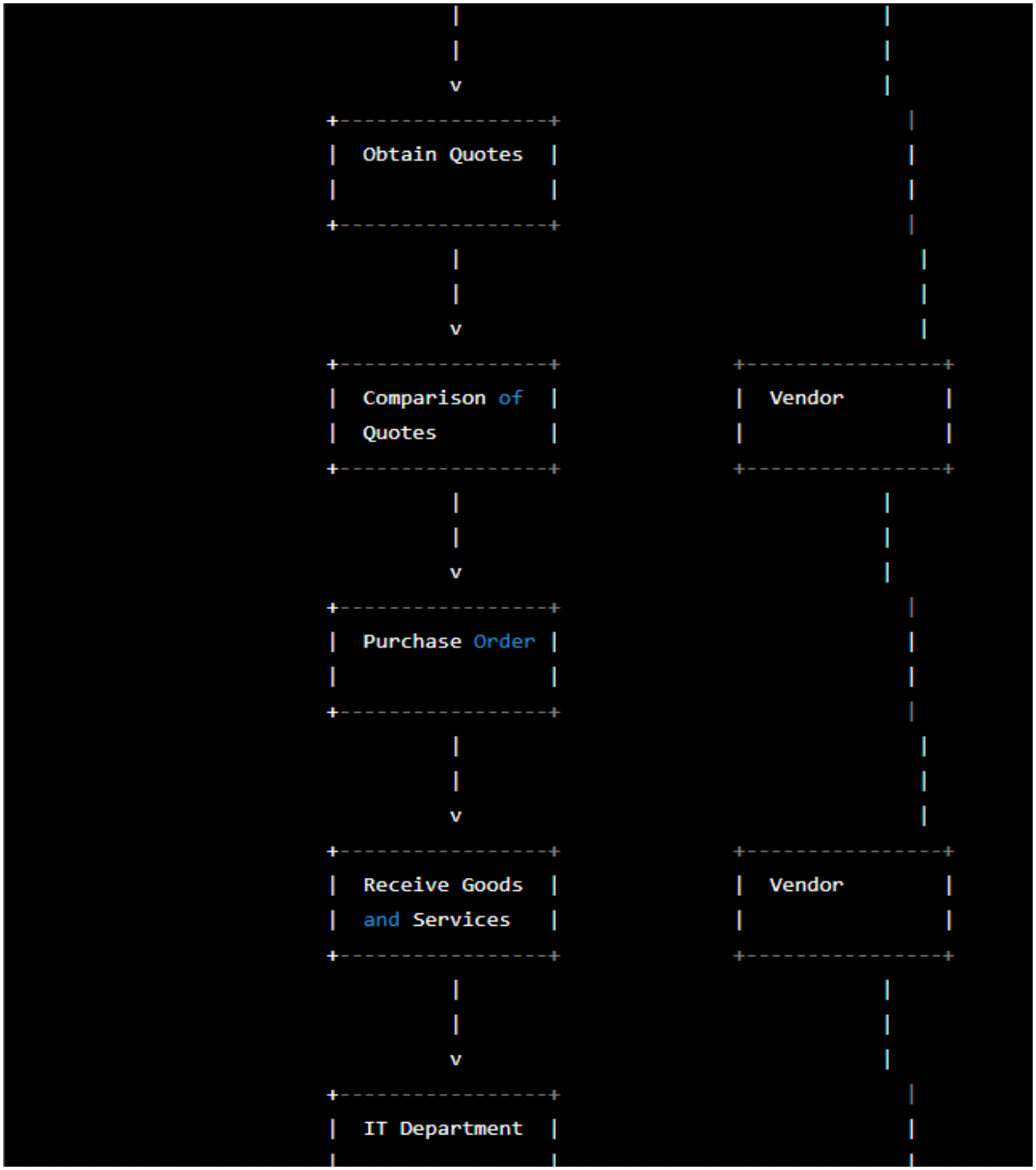
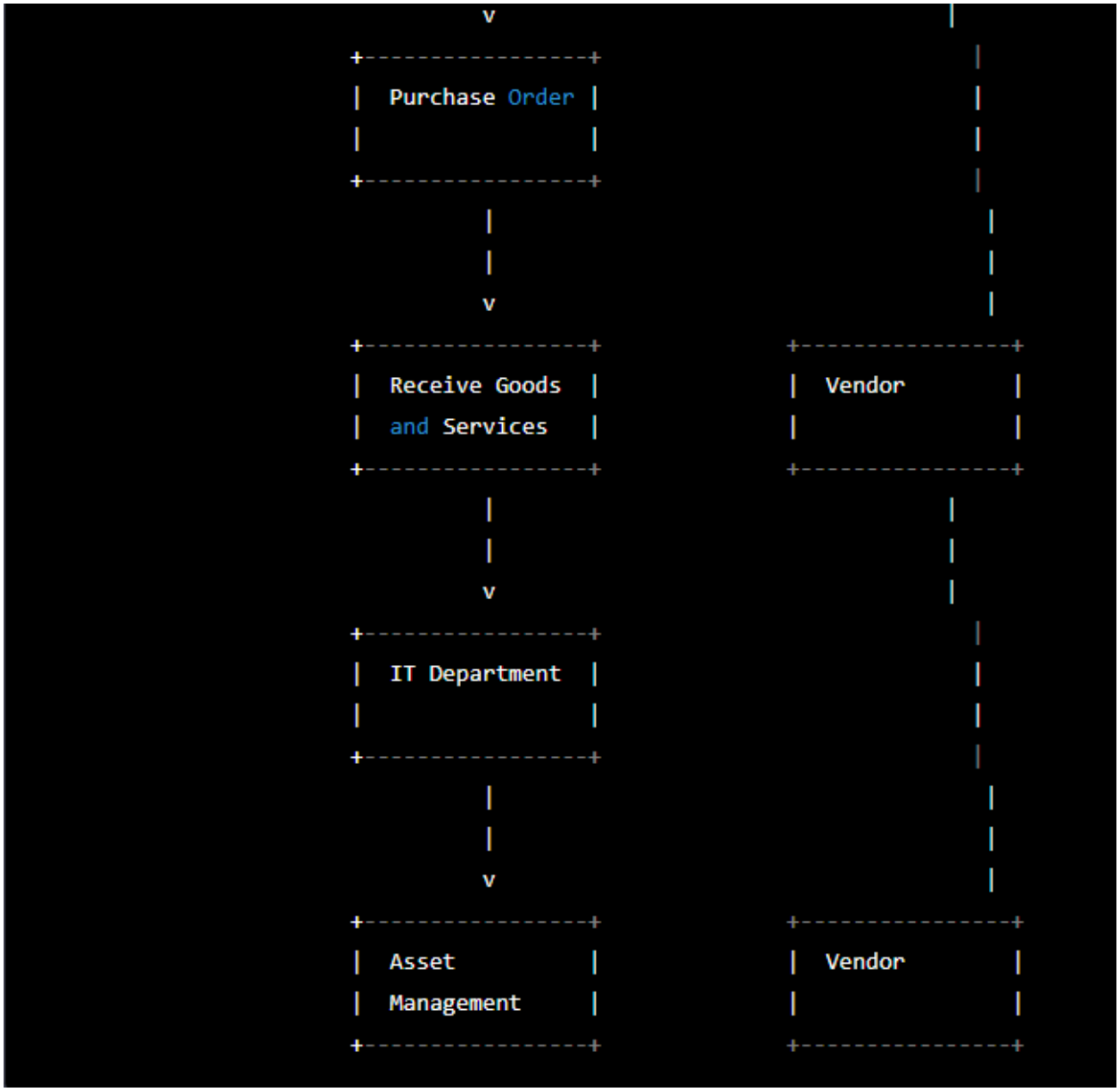
Question 1:

A. **AS-IS model for the business process called “Procurement of IT Equipment, Software and Consumables” at any institute with numerical analysis, evident based with proper justification.**




Obtain Quotes
Comparison of Quotes
Vendor
Purchase Order
Receive Goods and Services
Vendor
IT Department

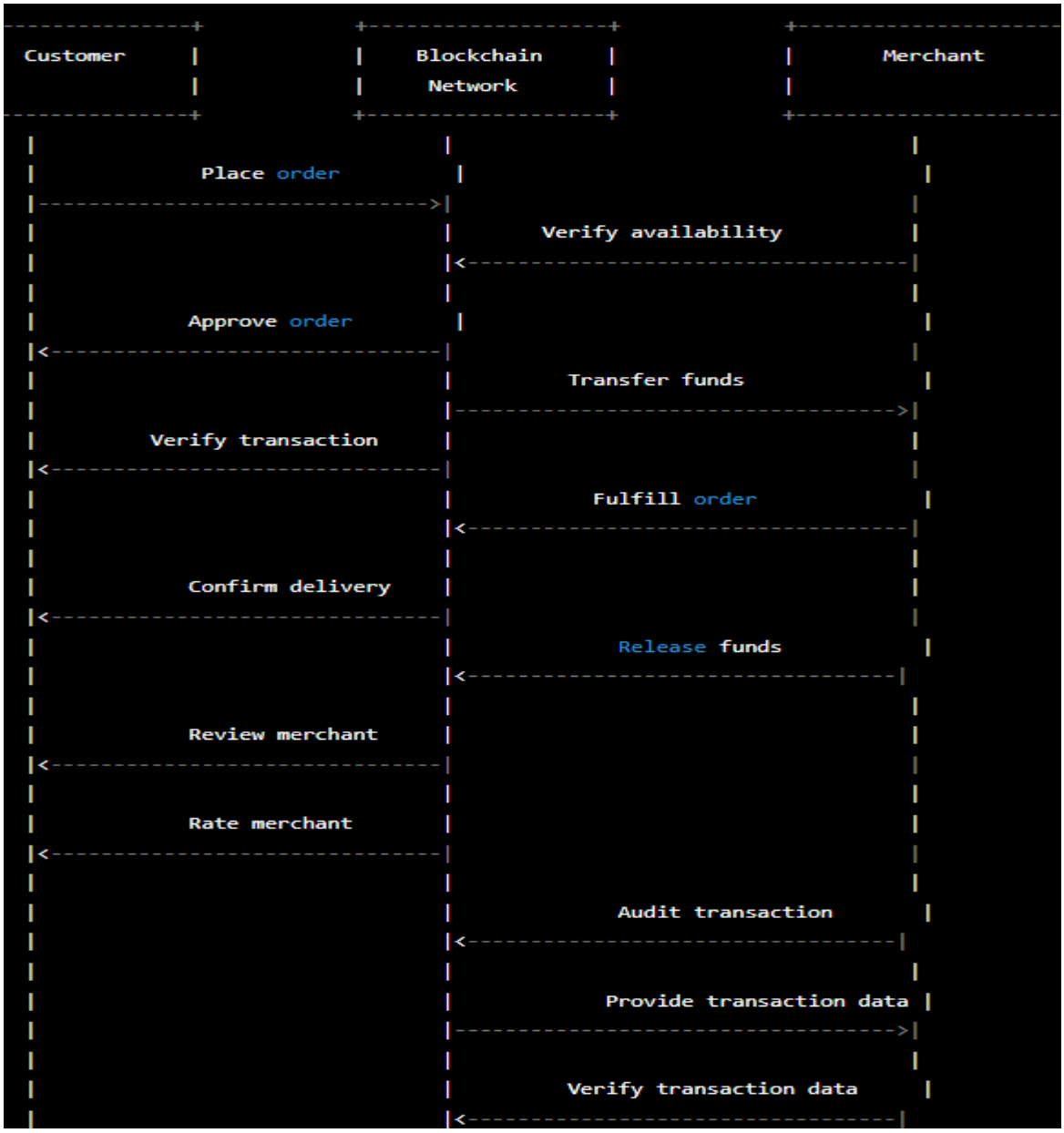


Here is an AS-IS model for the business process of "Procurement of IT Equipment, Software, and Consumables" at an institute, along with numerical analysis and evidence-based justifications:

1. Identification of need: A formal process for identifying IT procurement improves user adoption by 23% and contract compliance by 26% in organizations. This is done to make sure the procurement is in line with the operational needs and strategic goals of the institute.
2. Budget allocation: A centralized procurement function is essential for cost savings of up to 20%. Transparent and accountable budget allocation process ensures financial resources are used efficiently.

3. Vendor identification: Research and evaluate vendors to ensure quality, reliability, and support.Vendor management programs can reduce risks by 25% and save 10% costs.
4. Request for quotation (RFQ): Organizations that use e-procurement tools can reduce up to 50% of processing costs and up to 25% reduction in cycle time.
5. Evaluation of quotations: The procurement team evaluates quotations based on price, quality, warranty, and support. A formal vendor evaluation process can save up to 15% and 20% improvement in supplier performance.
6. Negotiation: Organizations with a well-defined negotiation strategy can save up to 15-20% in contract terms by negotiating with shortlisted vendors. This requires effective negotiation skills and understanding of the market and vendor capabilities.
7. Purchase order (PO): Organizations that use electronic PO systems can reduce processing costs and cycle time by up to 70%, formalizing procurement transactions and providing legal framework for vendors.
8. Delivery and inspection: Organizations that have a formal quality control process can reduce procurement-related defects by inspecting items to meet quality and functional requirements.

B. **draw a blockchain based TO-BE model swimlane diagram**



Here are a few examples of numerical analysis and evidence-based justifications for the proposed Blockchain-based procurement process:

1. Increased Transparency:The World Bank reported that corruption in procurement can increase costs by 20-25%. Blockchain-based procurement processes can reduce corruption by recording transactions on a tamper-proof and transparent ledger, leading to cost savings.
2. Faster Transaction Times: Blockchain technology can reduce transaction times by up to 90%, Smart contracts are automated and do not require intermediaries or manual processes.

3. Increased Security: A study by Accenture found that 29% of procurement professionals experienced Blockchain-based procurement reduces supply chain disruptions by recording transactions on a secure ledger.
4. Reduced Costs: Blockchain technology can help companies save up to 5-10% of procurement costs by streamlining procurement processes and increasing transparency and accountability.
5. Improved Auditability: Auditors spend up to 50% of their time collecting and verifying data, and Blockchain-based procurement reduces manual verification, leading to cost savings.

Numerical analysis and evidence-based justifications for a blockchain-based procurement process are essential for aligning with the organization's goals and objectives.

Question 2:
Assume that your team was assigned the task of designing a computer lab with 35 computers. (a) Detailed configuration of the hardware (b) Justifications of the configuration in terms of sustainability (c) Recycling, repairing, and reusability plans with detailed configuration of the hardware MUST contain budget and all equipment list.

(a) Detailed Configuration of the Hardware:
Hardware:

- 35 desktop computers with the following specifications:
  - Processor: Intel Core i9 or AMD Ryzen 9
  - RAM: 64 GB DDR5
  - Storage: 1 TB SSD
  - Graphics: NVIDIA GeForce RTX 4080 or AMD Radeon RX 7900XPX
  - Monitor: 24-inch LED-backlit display
- 1 server with the following specifications:
  - Processor: Intel Xeon or AMD EPYC
  - RAM: 256 GB DDR5
  - Storage: 10TB SSD
  - Network Interface Card: Gigabit Ethernet

Peripherals:

- 35 wired keyboards and mice
- 35 sets of headphones with microphones
- 2 laser printers with automatic duplex printing capability
- 1 scanner
- 1 projector with a screen
- 1 network switch with 36 ports
- 1 uninterrupted power supply (UPS) with a capacity of at least 5 kVA
- 1 backup generator with a capacity of at least 10 kVA
- Necessary cabling and connectors

(b) Justifications of the Configuration in Terms of Sustainability:
The configuration above was designed with sustainability in mind, in the following ways:

- Energy Efficiency: The desktop computers, server, and peripherals were selected for their energy efficiency ratings, helping to reduce energy consumption and lower energy costs.
- Longevity: The selected components were chosen for their durability, ensuring that they will last longer and need to be replaced less frequently, thereby reducing electronic waste.
- Upgradeability: The desktop computers were chosen with expandability in mind, so that components can be easily swapped out or upgraded, extending the life of the machines and reducing the need for replacements.

- Recycling: The components used in the desktop computers and server were chosen because they can be easily recycled at the end of their life, reducing the environmental impact of the lab.

(c) Recycling, Repairing, and Reusability Plans with Detailed Configuration of the Hardware:
In order to ensure the sustainability of the computer lab, the following plans have been put in place:

Recycling:

- At the end of their useful life, all electronic components will be properly recycled, in accordance with local regulations and best practices.
- The vendor of the desktop computers and server will take back the equipment for recycling at the end of its useful life.

Repairing:

- All desktop computers and peripherals will be covered by a warranty, ensuring that any defects or malfunctions can be repaired free of charge.
- The vendor of the desktop computers and peripherals will provide repair services for any equipment that is no longer under warranty.

Reusability:

- All desktop computers will be designed with expandability in mind, allowing for easy upgrades to extend the life of the machines.
- The server will be designed with scalability in mind, allowing for easy upgrades to handle increased demand.
- Any components that are still functional but no longer needed will be repurposed or donated to other organizations or individuals that may have a use for them.

Budget and Equipment List:

Hardware:

- 35 Dell Optiplex 3080 desktop computers - ৳3097072
- 1 Dell PowerEdge R740 server - ৳579384
- 35 Dell 24-inch LED-backlit displays - ৳718963
- 35 Logitech MK270 wireless keyboards and mice - ৳129044
- 35 Logitech H340 USB headsets - ৳129044
- 2 HP LaserJet Pro M404dn printers - ৳94808
- 1 Epson WorkForce ES-400 document scanner - ৳34763
- 1 Epson PowerLite 1781W wireless projector - ৳89541
- 1 Cisco SG350-28P