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COMPUTER SUPPORT AND MAIN WEEK 11

1. Personal Computer Maintenance Report

1. Maintenance Checklist

Area	Task	Status (Before)	Status (After)
Hardware	Clean keyboard, mouse, and monitor	Dusty	Clean
Internal components	Check for dust and clean fans	Moderate dust	Cleaned and clear airflow
Cables	Check for loose or frayed cables	Some tangled	Organized and secured
Storage	Check available disk space	80% full	60% full after cleanup
Software	Update OS and programs	Some outdated	Fully updated
Security	Scan for viruses/malware	Not scanned recently	No threats found
Performance	Run disk cleanup and defragmentation	Slower response	Improved speed
Backups	Verify recent backup	Not up to date	Backup completed successfully

2. Physical Cleaning and Inspection

- **Tools used:** Soft cloth, compressed air, small brush.
- **Action:** Opened computer case (if desktop) to remove dust from fans, vents, and components. Cleaned keyboard and screen with microfiber cloth.
- **Observation (Before):** Dust buildup in cooling fan and around power supply.
- **Observation (After):** Clean fans, better ventilation, and quieter operation.

3. Software Updates and Maintenance Utilities

- **Performed:**
 - Updated Windows/macOS and drivers.
 - Updated antivirus and ran full system scan.
 - Used Disk Cleanup and Disk Defragmenter (or SSD optimization).
 - Removed unused programs and startup apps.
- **Result:** System startup time improved, and storage space increased.

4. Backup Verification

- **Method:** Used external hard drive and cloud backup (e.g., Google Drive/OneDrive).
 - **Result:** All important files backed up and verified.
 - **Next scheduled backup:** Weekly automatic backup.
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5. Before and After Summary

Aspect	Before	After
System performance	Slow boot, lag during multitasking	Faster and smoother operation
Storage	80% used	60% used
Fan noise	Loud	Quiet
Temperature	Warm	Cooler
Updates	Outdated	Up to date

6. Conclusion

Preventive maintenance improved computer speed, stability, and cooling efficiency. Regular maintenance (every 3–6 months) is recommended to extend system lifespan and prevent hardware or software issues.

2. Preventive Maintenance Plan for a Small Business

1. Purpose

The purpose of this plan is to ensure all computer systems, peripherals, and networking equipment remain in good working condition through regular preventive maintenance. The plan minimizes downtime, improves performance, and extends equipment lifespan.

2. Maintenance Scope

Applies to all office computers, printers, routers, and storage devices used in daily business operations.

3. Maintenance Tasks and Frequencies

Task Category	Task Description	Frequency	Responsible Person
Hardware	Clean keyboards, monitors, and mice	Weekly	IT Technician
Hardware	Open computer cases and clean fans/vents	Monthly	IT Technician
Software	Update operating systems and applications	Weekly	System Admin
Security	Run antivirus and malware scans	Daily	User / IT Support
Data Management	Backup all business data to external/cloud storage	Daily	Data Officer
Network	Check router/modem performance and connections	Weekly	Network Admin
Performance	Run disk cleanup and defragmentation	Monthly	IT Support
Inventory	Check hardware for wear or failure	Quarterly	Maintenance Manager
Training	Remind users about safe computing habits	Quarterly	IT Department

4. Checklists

Daily Checklist

- Run antivirus scan
- Check system backups
- Verify internet/network connectivity
- Report any hardware/software issues

Weekly Checklist

- Clean monitors, keyboards, and desk areas
- Update system software and drivers
- Test printers and peripheral devices
- Delete unnecessary temporary files

Monthly Checklist

- Open PC cases and clean internal dust
 - Run full disk optimization
 - Inspect cables and power supply units
 - Test UPS and surge protectors
 - Review software licenses and renewals
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5. Required Tools and Supplies

Category	Items
Cleaning Tools	Compressed air, microfiber cloths, brushes
Software Utilities	Antivirus, disk cleanup tools, driver updater
Hardware Tools	Screwdrivers, cable ties, thermal paste
Backup Supplies	External hard drives, USB drives, cloud storage accounts
Documentation	Maintenance logs, checklists, report forms

6. Documentation Templates

Maintenance Log Template

Date Equipment Task Performed Status Technician Notes

Backup Verification Log

Date Backup Location Completed (Y/N) Verified (Y/N) Comments

Maintenance Report

- **System Name:**
 - **Date of Maintenance:**
 - **Tasks Performed:**
 - **Issues Found:**
 - **Corrective Action:**
 - **Technician Signature:**
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7. Review and Update

This maintenance plan should be reviewed **every six months** to ensure that all procedures remain effective and align with evolving business needs and technology changes.

8. Conclusion

Implementing this preventive maintenance plan will reduce downtime, enhance productivity, and ensure reliable operation of all business computer systems.

3-Benefit Analysis: Financial Impact of Preventive Maintenance

1. Purpose

This report analyzes the financial benefits of implementing a **preventive maintenance plan** for a small business's computer systems, compared to allowing issues to occur and relying on **reactive repairs**.

2. Research: Common Computer Repair Costs

Component / Issue	Average Repair Cost (USD)	Average Repair Time
Hard drive failure	\$120 – \$250	3 – 4 hours
Power supply replacement	\$80 – \$150	2 hours
Operating system reinstallation	\$60 – \$100	2 – 3 hours
Malware or virus removal	\$50 – \$120	1 – 2 hours
Motherboard replacement	\$200 – \$400	4 – 5 hours
Data recovery (from failed drive)	\$300 – \$800	6+ hours

→ **Average repair cost per issue:** ≈ \$200

→ **Average downtime per issue:** ≈ 3 hours

3. Maintenance Time and Cost Estimates

Maintenance Activity	Frequency	Time Required	Estimated Cost
System cleaning & inspection	Monthly	1 hour	\$15 (labor)

Maintenance Activity	Frequency	Time Required	Estimated Cost
Software updates & virus scans	Weekly	0.5 hour	\$10
Backup and performance checks	Weekly	0.5 hour	\$10
Hardware check (quarterly)	Quarterly	1 hour	\$20

→ Total annual maintenance cost (per PC): $\approx \$200$

→ Total maintenance time per year: ≈ 30 hours

4. Comparison: Preventive vs. Reactive Approach

Category	Preventive Maintenance	Reactive Repairs
Average yearly cost per computer	\$200	\$600–\$800
Average downtime per year	2–3 hours	15–25 hours
System lifespan	4–5 years	2–3 years
Data loss risk	Very low	High
Employee productivity loss	Minimal	Frequent disruptions

5. Potential Savings Calculation

Example for 10 computers:

Cost Type	Preventive	Reactive	Savings
Direct costs	\$2,000	\$7,000	\$5,000
Productivity loss (at \$15/hr \times 20 hours downtime \times 10 PCs)	\$3,000	\$0	\$3,000
Total Annual Savings			$\approx \\$8,000$

6. ROI (Return on Investment) Calculation

$$\text{ROI} = \frac{\text{Savings} - \text{Maintenance Cost}}{\text{Maintenance Cost}} \times 100$$

$$100 \text{ ROI} = \frac{\text{Maintenance Cost}(\text{Savings} - \text{Maintenance Cost})}{\text{Maintenance Cost}} \times 100$$

$$\text{ROI} = \frac{(8000 - 2000)}{2000} \times 100 = 300\%$$

$$\text{ROI} = \frac{2000}{(8000 - 2000)} \times 100 = 300\%$$

✓ **ROI = 300%**

This means that for every **\$1 spent on preventive maintenance**, the business **saves \$3** in avoided repair and downtime costs.

7. Conclusion

Implementing preventive maintenance:

- Reduces repair costs by **up to 70%**,
- Extends computer lifespan by **2 years or more**,
- Improves productivity and reliability,
- Provides a **high financial return ($\approx 300\%$)**.