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Assignment-2: PC Brand Evaluation – Compaq

1. Hardware Quality & Performance

Category	Evaluation
CPU Performance	Compaq PCs usually use **Intel Core i3/i5 (older 8th–11th Gen)** or **AMD Ryzen 3/5** processors. Suitable for **office work, browsing, and light multitasking**, not high-end workloads. Power efficiency is average; thermal output is manageable but not optimized for heavy loads.
GPU Performance	Mostly **integrated GPUs** (Intel UHD / Iris Xe or AMD Vega). Not designed for gaming or workstation tasks. Very limited graphics performance.
RAM Type & Speed	Typically **DDR4 RAM**, 8GB common. Some models allow **RAM upgrades**, but many budget laptops have **one soldered slot**. DDR5 is rare.
Storage	Uses **SSD (SATA or PCIe Gen 3 NVMe)** in newer models. Older models may include HDDs. Storage upgrade is usually possible.

2. Thermals & Noise

Category	Evaluation
Cooling System Quality	Basic cooling system. Designed for low-power CPUs. Not suitable for sustained heavy workloads.

Category	Evaluation
Fan Noise Under Load	Quiet during light tasks. Fan becomes noticeable under multitasking or long usage.
Thermal Throttling	Can occur under continuous load due to basic thermal design. Acceptable for everyday tasks.

3. Build Materials & Durability

Category	Evaluation
Chassis Material	Mostly **plastic chassis** to reduce cost.
Hinges	Standard hinges; not reinforced like business-grade laptops.
Durability Certifications	No MIL-STD certifications. Not designed for rugged use.

4. Design & Ergonomics

Category	Evaluation
Weight & Portability	Lightweight to moderate. Suitable for students and office users.
Keyboard Quality	Average keyboard. Decent typing experience but limited key travel. Backlight may be absent in budget models.
Trackpad	Functional but basic. Adequate for normal use.
Hinge Design	Traditional clamshell design (no 360° or detachable).
Aesthetics	Simple, minimal, budget-oriented design philosophy.

5. Display Quality

Category	Evaluation
Resolution	Mostly **Full HD (1920×1080)**. Older models may use HD panels.

Category	Evaluation
Panel Type	IPS in newer models; TN panels in older or very low-cost models.
Brightness	Around **220–300 nits** (average).
Color Coverage	~60–65% sRGB. Not suitable for professional color work.
Refresh Rate	Standard **60 Hz**.
Contrast Ratio	Average contrast.
Touchscreen	Rare; available only in selected models.

6. Reliability & Brand Reputation

Category	Evaluation
Reliability Track Record	Decent for entry-level systems. Not premium or long-term heavy-use machines.
User Reviews	Mixed reviews: praised for affordability, criticized for build quality.
Repairability Scores	Moderate repairability. Easier than ultra-thin laptops but not excellent.
Long-Term Performance	Stable for basic use; performance degrades faster under heavy workloads.

7. Battery & Power Efficiency

Category	Evaluation
Battery Life	**5–7 hours** for normal usage.
Fast Charging	Limited or not available in most models.
Battery Health Features	Basic battery management via BIOS/Windows.
Power Adapter	Compact and lightweight charger.

8. Software & Ecosystem

Category	Evaluation
Preinstalled Bloatware	Some HP/Compaq utilities preinstalled; removable.
OS Options	Mostly **Windows 10/11**. Linux support is unofficial but possible.
Brand Software	Basic HP utilities (system diagnostics, updates).
Driver Stability	Stable drivers, but updates are less frequent than premium brands.

9. Security Features

Category	Evaluation
BIOS/UEFI Security	Standard BIOS security features.
TPM	TPM 2.0 available in newer models.
Fingerprint Reader	Rare in budget Compaq models.
IR Camera	Generally not available.
Privacy Shutter	Usually absent.
Encryption Support	Supports BitLocker via Windows.

10. Upgradeability & Repairability

Category	Evaluation
RAM Upgrade	Limited; depends on model.
Storage Expansion	SSD replacement possible in most models.
Battery Replaceability	Internal battery; replaceable by technician.
Repair Restrictions	Moderate restrictions.
Screw Accessibility	Standard screws, not overly complex.

11. Connectivity & Ports

Category	Evaluation
USB Ports	USB-A and USB-C available (no Thunderbolt).
Video Output	HDMI supported.
Card Reader	SD/microSD available in some models.
Ethernet	Available in desktops; rare in laptops.
Wi-Fi	Wi-Fi 5 or Wi-Fi 6 in newer models.
Bluetooth	Bluetooth 5.0+.

12. Price & Value

Category	Evaluation
Price-to-Performance	Good for basic computing tasks.
Lifespan Value	Suitable for short- to mid-term use.
Configurations	Limited customization options.
Upgrade Path	Limited but acceptable for budget systems.
Discounts	Often affordable with student pricing.

13. Customer Service & Warranty

Category	Evaluation
Warranty Length	Standard **1 year**.
Repair Type	Depot repair mostly.
Support Quality	Average responsiveness.
Extended Warranty	Available at additional cost.

Category   **Evaluation**

Accidental Damage Limited availability.

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14. Special Use-Case Evaluation

For Students

- ✔ Affordable
- ✔ Lightweight
- ✔ Adequate battery
- ✘ Not powerful

For Business

- ✔ Basic security
- ✘ Not rugged
- ✘ Limited enterprise features

For Gaming

- ✘ No dedicated GPU
- ✘ Weak cooling

For Creative Work

- ✘ Low color accuracy
- ✘ Weak GPU

Conclusion

Compaq PCs are best suited for students, home users, and basic office work.
They offer **good affordability and acceptable performance**, but lack **premium build quality, strong graphics, and advanced features**.