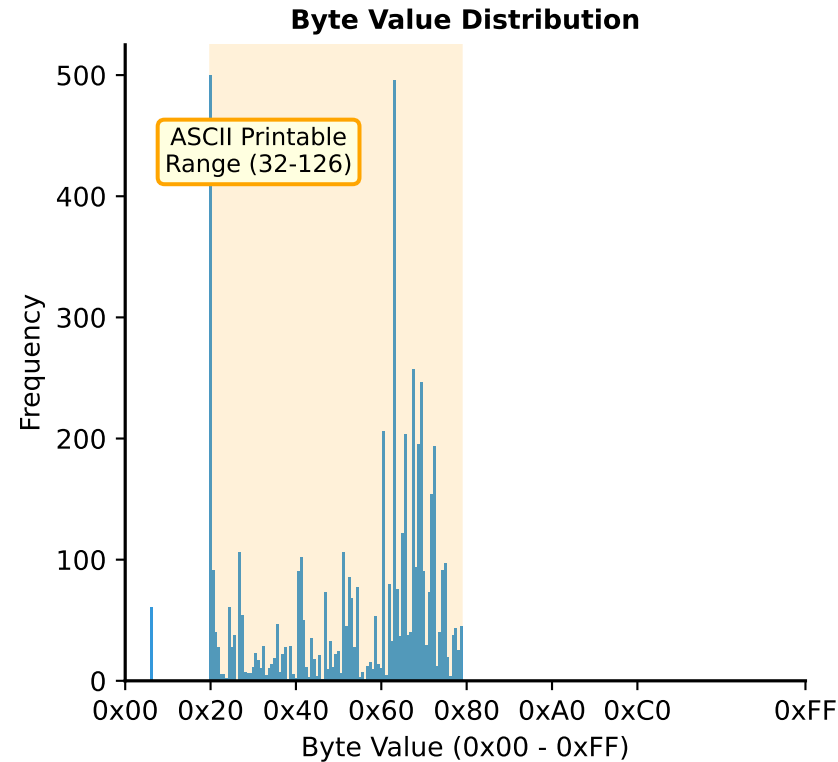


# Figure: Entropy-based Analysis and Byte Patterns of Different File Types

**A) Normal Text File (e.g., hello.txt)**  
Low Entropy (~4.2) | Predictable Patterns

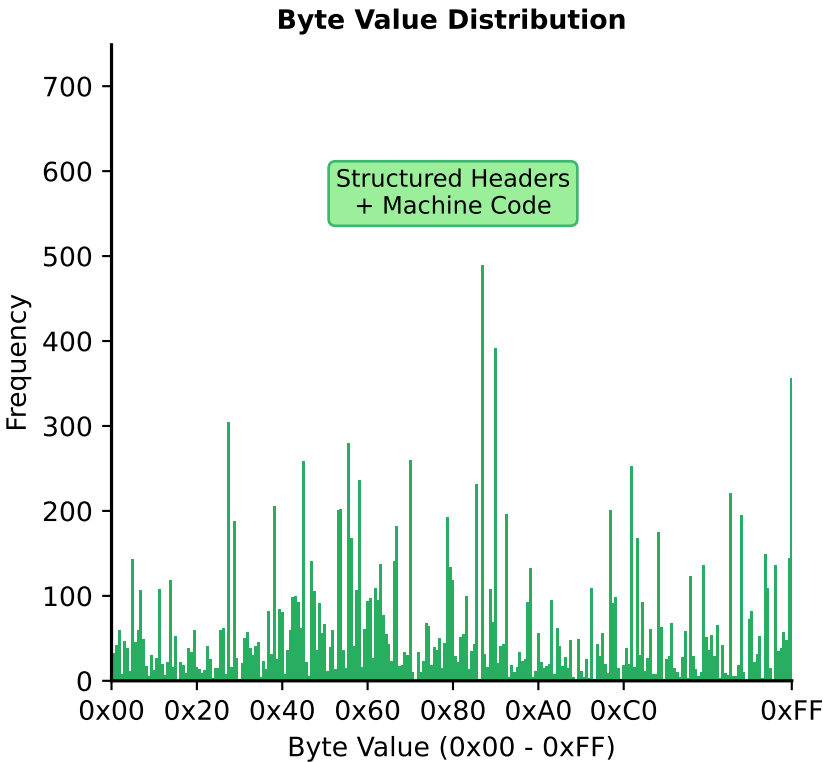


Raw Hex: 68 65 6C 6C 6F 20 77 6F 72 6C 64 0A  
(h e l l o [SPC] w o r l d [NL])

**Characteristics:**

- High redundancy (repeated 'e', 'l', 'o')
- Uses only ~70/256 byte values

**B) System Binary (e.g., libc.so, ELF)**  
Medium Entropy (~6.1) | Structured yet Diverse

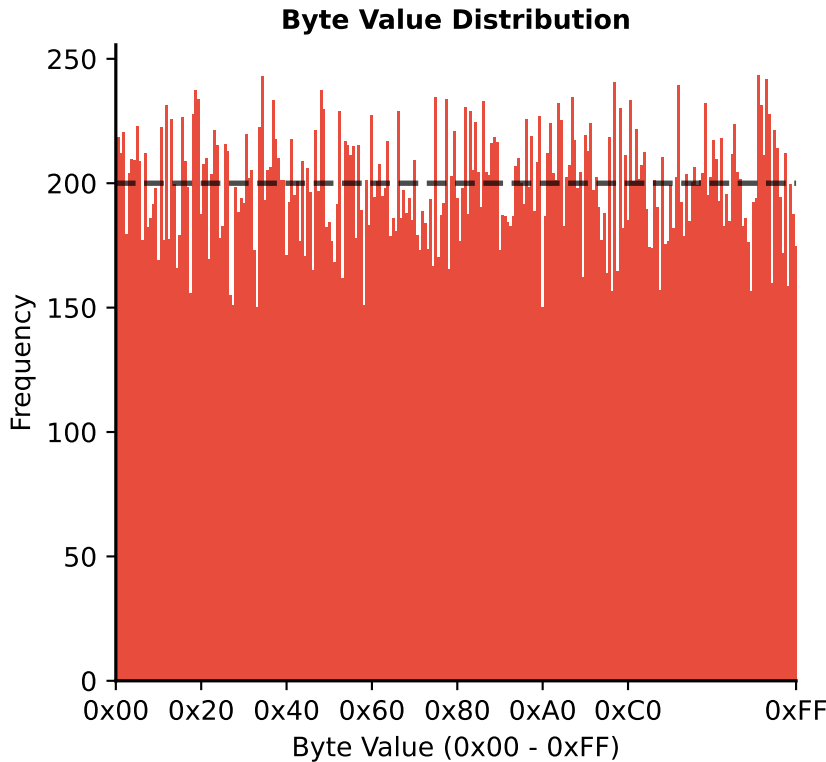


Raw Hex: 7F 45 4C 46 02 01 01 00 00 00 00 00...  
(\* . E L F magic bytes...)

**Characteristics:**

- Fixed headers (Magic Number)
- Code has diverse bytes, but patterns exist

**C) Packed/Encrypted Rootkit (Malware)**  
High Entropy (~7.9) | "Attacker's Paradox"



Raw Hex: A7 3D 92 F1 8E C0 5A B4 69 2E D7 1B...  
(Encrypted/Packed Payload - No Pattern)

**Characteristics:**

- All 256 byte values used equally
- Attacker's Paradox: Hiding makes the file "too random", creating a detectable anomaly