A3: Laptop Data Cleaning and Preparation

The dataset used in this exercise was downloaded from Kaggle at the following URL:
https://www.kaggle.com/datasets/jacksondivakarr/laptop-price-prediction-dataset?resource=download. A brief description of each included column is provided below. Perform the tasks listed below and answer the associated questions. Deliver the results as an HTML webpage generated from an R Markdown or Quarto file. Use headers or text to differentiate each component of the assignment. Make sure to include both the code and the results in your submission. Hint: the forcats, stringr, and dplyr packages will be needed. When reading in the data, make sure all character columns are treated as factors.

- **brand**: laptop brand name
- **name**: name of laptop
- **price**: price in US Dollars×100 (divide by 100 to get price)
- **spec_rating**: specification score (0 to 100)
- **processor**: processor name
- **CPU**: central processing unit (CPU) specs
- **Ram**: amount of installed RAM
- **Ram_type**: type of RAM
- **ROM**: Size of hard disk
- **ROM_type**: type of hard disk (SSD or Hard-Disk)
- **GPU**: installed graphics processing unit (GPU)
- **display_size**: size of display in inches
- **resolution_width**: resolution in width dimension in pixels
- **resolution_height**: resolution in height dimension in pixels
- **OS**: operating system
- **warranty**: length of warranty in years

**Q1**: How many factor levels of RAM are differentiated? (2 Points)

**T1**: Write code to recode the Ram factor levels as follows and convert to a numeric type (Original → New):

- "12GB" = "12"
- "16GB" = "16"
- "2GB" = "2"
- "32GB" = "32"
- "4GB" = "4"
- "64GB" = "64"
- "8GB" = "8". (3 Points)

**Q2**: What percentage of the computers have at least 16GB of RAM? (2 Points)

**T2**: Write code to recode the ROM factor levels as follows and convert to a numeric type (Original → New):

- "128GB" = "128"
- "1TB" = "1000"
- "256GB" = "256"
- "2TB" = "2000"
- "32GB" = "32"
- "512GB" = "512"
- "64GB" = "64". (3 Points)

**Q3**: What percentage of the computers have at least 512 GB of ROM? (2 Points)

**T3**: Write code to create a field that indicates whether the machine has an Intel processor. (3 Points)

**Q4**: What percentage of the computers have an Intel processor? (2 Points)

**T4**: Write code to create a field that indicates whether the machine has an AMD processor. (3 Points)

**Q5**: What percentage of the computers have an AMD processor? (2 Points)

**T5**: Write code to create a field that indicates whether the machine has an NVIDIA GPU. (3 Points)

**Q6**: What percentage of the computers have an NVIDIA GPU? (2 Points)

**T6**: Write code to create a single column that differentiates between Intel and AMD processors. Any other type should be coded as “Other”. (3 Points)

**T7**: Write code to create a single column that will differentiate between i3, i5, i7, and i9 Intel processors. All other processors should be coded to "Other". (4 Points)

**Q7**: What percentage of the computers has an i7 or i9 processor? (2 Points)

**Q8**: What percentage of computers have an AMD processor, at least 16GB of RAM, and at least 1TB of ROM? (2 Points)

**Q9**: What percentage of the computers have an Intel i7 processor, at least 1TB of ROM, at least 32GB of RAM, and a solid-state hard drive (SSD). (2 Points)