Project EDA

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library(ggplot2)

## Warning: package 'ggplot2' was built under R version 4.3.2

library(tinytex)

## Warning: package 'tinytex' was built under R version 4.3.2

INTRODUCTION:

I have a keen interest in the field of technology and gadgets, specifically laptops in this case. Working with this data will help me gain valuable knowledge regarding how laptops are categorized based on their specifications, how they are priced, which laptop is suitable for a particular user, which brand is more expensive, which brand is more affordable, and so on. The data comprises a combination of specifications and categorical information.

data <- read.csv("./Laptop\_Data.csv")  
data

## brand model processor\_brand processor\_name processor\_gnrtn  
## 1 Lenovo A6-9225 AMD A6-9225 Processor 10th  
## 2 Lenovo Ideapad AMD APU Dual 10th  
## 3 Avita PURA AMD APU Dual 10th  
## 4 Avita PURA AMD APU Dual 10th  
## 5 Avita PURA AMD APU Dual 10th  
## 6 Avita PURA AMD APU Dual 10th  
## 7 HP APU AMD APU Dual 10th  
## 8 Lenovo APU AMD APU Dual 10th  
## 9 HP Athlon AMD Athlon Dual 10th  
## 10 acer Aspire AMD Athlon Dual 10th  
## 11 ASUS ExpertBook Intel Core i3 10th  
## 12 Lenovo other Intel Core i3 10th  
## 13 Lenovo v15 Intel Core i3 10th  
## 14 ASUS ExpertBook Intel Core i5 10th  
## 15 ASUS VivoBook Intel Celeron Dual other  
## 16 ASUS EeeBook Intel Celeron Dual other  
## 17 ASUS EeeBook Intel Celeron Dual other  
## 18 ASUS ExpertBook Intel Core i5 10th  
## 19 Lenovo other Intel Core i5 10th  
## 20 acer Aspire AMD Ryzen 10th  
## 21 acer Nitro AMD Ryzen 5 10th  
## 22 acer Nitro AMD Ryzen 5 10th  
## 23 acer Nitro AMD Ryzen 5 10th  
## 24 Avita Cosmos Intel Celeron Dual other  
## 25 ASUS EeeBook Intel Celeron Dual other  
## 26 ASUS ExpertBook Intel Core i3 11th  
## 27 HP x360 Intel Core i3 11th  
## 28 HP x360 Intel Core i5 11th  
## 29 Lenovo IdeaPad Intel Celeron Dual other  
## 30 HP Celeron Intel Celeron Dual other  
## 31 Lenovo IdeaPad Intel Celeron Dual other  
## 32 ASUS VivoBook Intel Celeron Dual other  
## 33 ASUS Celeron Intel Celeron Dual other  
## 34 HP 15q Intel Core i3 7th  
## 35 HP 250-G6 Intel Core i5 7th  
## 36 ASUS other Intel Core i3 11th  
## 37 Lenovo IdeaPad Intel Core i3 10th  
## 38 ASUS VivoBook Intel Core i3 11th  
## 39 ASUS VivoBook Intel Core i3 10th  
## 40 HP other Intel Core i3 11th  
## 41 DELL Vostro Intel Core i3 10th  
## 42 RedmiBook 15 Intel Core i3 11th  
## 43 HP Pavilion Intel Core i3 11th  
## 44 acer Aspire Intel Core i3 11th  
## 45 realme Book Intel Core i3 11th  
## 46 ASUS other Intel Core i3 11th  
## 47 ASUS VivoBook Intel Core i3 11th  
## 48 Lenovo IdeaPad Intel Core i3 11th  
## 49 Lenovo IdeaPad Intel Core i3 10th  
## 50 DELL Vostro Intel Core i3 11th  
## 51 ASUS VivoBook Intel Core i3 11th  
## 52 Lenovo IdeaPad Intel Core i3 11th  
## 53 DELL Inspiron Intel Core i3 11th  
## 54 Infinix INBook Intel Core i3 10th  
## 55 DELL Vostro Intel Core i3 10th  
## 56 Lenovo Ideapad Intel Core i3 11th  
## 57 ASUS VivoBook Intel Core i3 11th  
## 58 Lenovo IdeaPad Intel Core i3 10th  
## 59 DELL Inspiron Intel Core i3 10th  
## 60 ASUS VivoBook Intel Core i3 11th  
## 61 Lenovo Ideapad Intel Core i3 10th  
## 62 DELL Inspiron Intel Core i3 11th  
## 63 DELL Inspiron Intel Core i3 11th  
## 64 DELL Vostro Intel Core i3 11th  
## 65 DELL Inspiron Intel Core i3 11th  
## 66 Lenovo Ideapad Intel Core i3 11th  
## 67 Infinix INBook Intel Core i3 10th  
## 68 ASUS VivoBook Intel Core i3 11th  
## 69 Lenovo other Intel Core i3 11th  
## 70 Lenovo ThinkPad Intel Core i3 11th  
## 71 Lenovo IdeaPad Intel Core i3 10th  
## 72 Lenovo other Intel Core i3 10th  
## 73 HP other Intel Core i3 11th  
## 74 MSI other Intel Core i3 10th  
## 75 DELL Vostro Intel Core i3 11th  
## 76 ASUS VivoBook Intel Core i3 10th  
## 77 Lenovo Ideapad Intel Core i3 10th  
## 78 Lenovo other Intel Core i3 10th  
## 79 DELL Inspiron Intel Core i3 10th  
## 80 realme Book Intel Core i3 11th  
## 81 acer Chromebook Intel Celeron Dual other  
## 82 DELL other Intel Core i3 11th  
## 83 ASUS VivoBook Intel Core i3 11th  
## 84 Lenovo IdeaPad Intel Core i3 10th  
## 85 ASUS other Intel Core i3 11th  
## 86 Lenovo Ideapad Intel Core i3 10th  
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## 90 Lenovo other Intel Core i3 10th  
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## 92 HP other Intel Core i3 11th  
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## 114 HP other Intel Core i3 10th  
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## 116 ASUS other Intel Core i3 10th  
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## 132 HP 15s Intel Core i3 11th  
## 133 HP other Intel Core i3 10th  
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## 135 ASUS VivoBook Intel Core i3 11th  
## 136 HP other Intel Core i3 11th  
## 137 ASUS VivoBook Intel Core i3 10th  
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## 215 acer Aspire Intel Core i5 other  
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## 239 LG Gram Intel Core i5 11th  
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## 241 acer Swift Intel Core i5 8th  
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## 244 HP other Intel Core i5 11th  
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## 247 HP Pavilion Intel Core i5 11th  
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## 291 acer Intel Intel Core i5 11th  
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## 293 HP other Intel Core i5 11th  
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## 325 Lenovo other Intel Core i5 11th  
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## 327 MSI Prestige Intel Core i5 11th  
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## 474 MSI GE76 Intel Core i5 10th  
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## 486 ASUS VivoBook Intel Core i5 11th  
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## 491 ASUS VivoBook Intel Core i5 11th  
## 492 Lenovo Ideapad Intel Core i5 11th  
## 493 ASUS VivoBook Intel Core i5 11th  
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## 495 Lenovo Legion Intel Core i5 9th  
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## 532 Lenovo Legion Intel Core i7 11th  
## 533 Infinix X1 Intel Core i7 10th  
## 534 ASUS VivoBook Intel Core i7 11th  
## 535 Lenovo IdeaPad Intel Core i7 11th  
## 536 HP Pavilion Intel Core i7 11th  
## 537 ASUS ZenBook Intel Core i7 11th  
## 538 Lenovo Thinkbook Intel Core i7 11th  
## 539 MSI other Intel Core i7 10th  
## 540 HP Envy Intel Core i7 11th  
## 541 DELL other Intel Core i7 11th  
## 542 ASUS ASUS Intel Core i7 11th  
## 543 HP Envy Intel Core i7 11th  
## 544 MSI other Intel Core i7 11th  
## 545 HP Pavilion Intel Core i7 11th  
## 546 Lenovo other Intel Core i7 11th  
## 547 MSI Prestige Intel Core i7 10th  
## 548 MSI Sword Intel Core i7 11th  
## 549 MSI Prestige Intel Core i7 11th  
## 550 HP Spectre Intel Core i7 10th  
## 551 ASUS VivoBook Intel Core i7 11th  
## 552 DELL XPS Intel Core i7 8th  
## 553 ASUS ZenBook Intel Core i7 8th  
## 554 MSI Katana Intel Core i7 11th  
## 555 HP Pavilion Intel Core i7 11th  
## 556 HP Spectre Intel Core i7 10th  
## 557 DELL XPS Intel Core i7 11th  
## 558 MSI Modern Intel Core i7 11th  
## 559 Lenovo ThinkPad Intel Core i7 10th  
## 560 Lenovo ThinkPad Intel Core i7 10th  
## 561 DELL Inspiron Intel Core i7 10th  
## 562 HP Pavilion Intel Core i7 11th  
## 563 MSI Prestige Intel Core i7 10th  
## 564 ASUS other Intel Core i7 11th  
## 565 ASUS ZenBook Intel Core i7 8th  
## 566 Lenovo other Intel Core i7 8th  
## 567 ASUS ZenBook Intel Core i7 11th  
## 568 Lenovo Ideapad Intel Core i7 8th  
## 569 Lenovo other Intel Core i7 10th  
## 570 HP other Intel Core i7 11th  
## 571 Lenovo other Intel Core i7 10th  
## 572 Lenovo Intel Intel Core i7 11th  
## 573 DELL other Intel Core i7 11th  
## 574 ASUS ZenBook Intel Core i7 8th  
## 575 MSI GF63 Intel Core i7 9th  
## 576 MSI GF65 Intel Core i7 10th  
## 577 ASUS Zenbook Intel Core i7 11th  
## 578 ASUS ZenBook Intel Core i7 11th  
## 579 ASUS ASUS Intel Core i7 11th  
## 580 HP Envy Intel Core i7 10th  
## 581 ASUS ZenBook Intel Core i7 11th  
## 582 MSI Stealth Intel Core i7 11th  
## 583 ASUS Zephyrus Intel Core i7 11th  
## 584 ASUS ZenBook Intel Core i7 10th  
## 585 DELL Inspiron Intel Core i7 11th  
## 586 HP Spectre Intel Core i7 10th  
## 587 MSI Summit Intel Core i7 11th  
## 588 Lenovo Yoga Intel Core i7 11th  
## 589 ASUS other Intel Core i7 10th  
## 590 MSI Stealth Intel Core i7 12th  
## 591 HP OMEN Intel Core i7 11th  
## 592 HP OMEN Intel Core i7 11th  
## 593 Lenovo Legion Intel Core i7 11th  
## 594 MSI Pulse Intel Core i7 11th  
## 595 HP Spectre Intel Core i7 11th  
## 596 MSI other Intel Core i7 12th  
## 597 acer Predator Intel Core i7 11th  
## 598 HP OMEN Intel Core i7 11th  
## 599 DELL Inspiron Intel Core i7 11th  
## 600 ASUS ROG Intel Core i7 10th  
## 601 HP Spectre Intel Core i7 11th  
## 602 Lenovo Yoga Intel Core i7 11th  
## 603 ASUS ZenBook Intel Core i7 11th  
## 604 ASUS other Intel Core i7 11th  
## 605 ASUS Zephyrus Intel Core i7 11th  
## 606 Lenovo other Intel Core i7 9th  
## 607 ASUS ASUS Intel Core i7 11th  
## 608 ASUS ExpertBook Intel Core i7 10th  
## 609 ASUS ExpertBook Intel Core i7 10th  
## 610 Lenovo Yoga Intel Core i7 10th  
## 611 ASUS ExpertBook Intel Core i7 10th  
## 612 HP Spectre Intel Core i7 11th  
## 613 Avita Liber Intel Core i7 10th  
## 614 Lenovo ThinkBook Intel Core i7 11th  
## 615 HP HP Intel Core i7 11th  
## 616 HP Omen Intel Core i7 11th  
## 617 Lenovo Legion Intel Core i7 10th  
## 618 acer Predator Intel Core i7 10th  
## 619 ASUS ExpertBook Intel Core i7 10th  
## 620 ASUS ExpertBook Intel Core i7 10th  
## 621 HP 15 Intel Core i7 8th  
## 622 MSI GF63 Intel Core i7 10th  
## 623 ASUS VivoBook Intel Core i7 10th  
## 624 ASUS other Intel Core i7 11th  
## 625 acer Predator Intel Core i7 10th  
## 626 MSI WF65 Intel Core i7 10th  
## 627 ASUS Pro Intel Core i7 8th  
## 628 acer Predator Intel Core i7 11th  
## 629 acer Predator Intel Core i7 11th  
## 630 acer Predator Intel Core i9 11th  
## 631 acer Predator Intel Core i9 11th  
## 632 MSI Creator Intel Core i9 11th  
## 633 ASUS ROG Intel Core i9 12th  
## 634 ASUS other Intel Core i9 10th  
## 635 ASUS ASUS Intel Core i9 11th  
## 636 Lenovo other Intel Core i9 10th  
## 637 ASUS Zephyrus Intel Core i9 11th  
## 638 Smartron t.book Intel Core m3 7th  
## 639 MSI Katana Intel Core i5 10th  
## 640 acer Aspire AMD Dual Core other  
## 641 acer Dual AMD Dual Core other  
## 642 MSI Pulse Intel Core i5 10th  
## 643 MSI Pulse Intel Core i5 10th  
## 644 ASUS ROG Intel Core i7 10th  
## 645 HP Chromebook Intel Dual Core 10th  
## 646 ASUS ZenBook Intel Ever Screenpad 10th  
## 647 ASUS ZenBook Intel Ever Screenpad 10th  
## 648 ALIENWARE other Intel GeForce GTX 10th  
## 649 DELL G15 Intel GeForce GTX 10th  
## 650 ALIENWARE other Intel GeForce RTX 10th  
## 651 ALIENWARE other Intel GeForce RTX 10th  
## 652 ALIENWARE other Intel GeForce RTX 10th  
## 653 DELL G15 Intel GEFORCE RTX 10th  
## 654 MSI GF65 Intel Hexa Core other  
## 655 MSI GF63 Intel Hexa Core other  
## 656 APPLE MacBook M1 M1 10th  
## 657 APPLE MacBook M1 M1 10th  
## 658 APPLE MacBook M1 M1 10th  
## 659 APPLE MacBook M1 M1 10th  
## 660 APPLE MacBook M1 M1 10th  
## 661 APPLE MacBook M1 M1 10th  
## 662 APPLE MacBook M1 M1 10th  
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## 667 APPLE MacBook M1 M1 10th  
## 668 APPLE MacBook M1 M1 10th  
## 669 APPLE MacBook M1 M1 10th  
## 670 APPLE MacBook M1 M1 10th  
## 671 APPLE MacBook M1 M1 10th  
## 672 APPLE MacBook M1 M1 10th  
## 673 APPLE MacBook M1 M1 10th  
## 674 APPLE MacBook M1 M1 10th  
## 675 APPLE MacBook M1 M1 10th  
## 676 APPLE MacBook M1 M1 10th  
## 677 APPLE MacBook M1 M1 10th  
## 678 APPLE MacBook M1 M1 10th  
## 679 APPLE MacBook M1 M1 10th  
## 680 DELL G7 Intel GeForce RTX 10th  
## 681 acer other Intel Genuine Windows 10th  
## 682 acer Predator Intel Genuine Windows 10th  
## 683 ASUS ASUS Intel Pentium Quad other  
## 684 iball CompBook Intel Pentium Quad other  
## 685 ASUS Pentium Intel Pentium Quad other  
## 686 ASUS ASUS Intel Pentium Quad other  
## 687 HP Pentium Intel Pentium Quad other  
## 688 ASUS VivoBook Intel Pentium Quad other  
## 689 acer Extensa Intel Pentium Quad other  
## 690 DELL Inspiron Intel Pentium Quad other  
## 691 ASUS VivoBook Intel Pentium Quad other  
## 692 DELL Inspiron Intel Pentium Quad other  
## 693 ASUS Pentium Intel Pentium Quad other  
## 694 ASUS Pentium Intel Pentium Quad other  
## 695 ASUS Pentium Intel Pentium Quad other  
## 696 ASUS Asus Intel Pentium Quad other  
## 697 ASUS VivoBook Intel Pentium Silver other  
## 698 ASUS EeeBook Intel Pentium Silver other  
## 699 Lenovo Legion Intel Genuine Windows 10th  
## 700 HP Ryzen AMD Ryzen 3 other  
## 701 ASUS Ryzen AMD Ryzen 3 other  
## 702 DELL Inspiron AMD Ryzen 3 other  
## 703 DELL Inspiron AMD Ryzen 3 other  
## 704 DELL Ryzen AMD Ryzen 3 other  
## 705 ASUS Ryzen AMD Ryzen 3 other  
## 706 DELL Inspiron AMD Ryzen 3 other  
## 707 ASUS VivoBook AMD Ryzen 3 other  
## 708 ASUS VivoBook AMD Ryzen 3 other  
## 709 acer Aspire AMD Ryzen 3 other  
## 710 HP Ryzen AMD Ryzen 3 other  
## 711 HP Ryzen AMD Ryzen 3 other  
## 712 acer Aspire AMD Ryzen 3 other  
## 713 HP 15s AMD Ryzen 3 other  
## 714 DELL Vostro AMD Ryzen 3 other  
## 715 DELL Inspiron AMD Ryzen 3 other  
## 716 DELL Vostro AMD Ryzen 3 other  
## 717 HP 15s AMD Ryzen 3 other  
## 718 DELL Inspiron AMD Ryzen 3 other  
## 719 DELL Inspiron AMD Ryzen 3 other  
## 720 DELL Inspiron AMD Ryzen 3 other  
## 721 DELL DELL AMD Ryzen 3 other  
## 722 HP 15q AMD Ryzen 3 other  
## 723 Lenovo Ryzen AMD Ryzen 3 other  
## 724 DELL Inspiron AMD Ryzen 3 other  
## 725 HP 15s AMD Ryzen 3 other  
## 726 HP Chromebook MediaTek MediaTek Kompanio 10th  
## 727 HP Chromebook MediaTek MediaTek Kompanio 10th  
## 728 HP Chromebook MediaTek MediaTek Kompanio 10th  
## 729 MICROSOFT Surface AMD Ryzen 5 other  
## 730 DELL Vostro AMD Ryzen 5 other  
## 731 DELL Inspiron AMD Ryzen 5 other  
## 732 DELL Inspiron AMD Ryzen 5 other  
## 733 DELL Vostro AMD Ryzen 5 other  
## 734 MSI Modern AMD Ryzen 5 other  
## 735 DELL Inspiron AMD Ryzen 5 other  
## 736 HP Pavilion AMD Ryzen 5 other  
## 737 Lenovo IdeaPad AMD Ryzen 5 other  
## 738 Lenovo IdeaPad AMD Ryzen 5 other  
## 739 HP Ryzen AMD Ryzen 5 other  
## 740 MSI Modern AMD Ryzen 5 other  
## 741 HP Ryzen AMD Ryzen 5 other  
## 742 acer Swift AMD Ryzen 5 other  
## 743 Lenovo IdeaPad AMD Ryzen 5 other  
## 744 acer Aspire AMD Ryzen 5 other  
## 745 Lenovo Ideapad AMD Ryzen 5 other  
## 746 MSI Bravo AMD Ryzen 5 other  
## 747 DELL Vostro AMD Ryzen 5 other  
## 748 HP HP AMD Ryzen 5 other  
## 749 Lenovo Legion AMD Ryzen 5 other  
## 750 HP 15-ec1105AX AMD Ryzen 5 other  
## 751 DELL Vostro AMD Ryzen 5 other  
## 752 HP Pavilion AMD Ryzen 5 other  
## 753 HP Ryzen AMD Ryzen 5 other  
## 754 ASUS VivoBook AMD Ryzen 5 other  
## 755 ASUS VivoBook AMD Ryzen 5 other  
## 756 ASUS APU AMD Quad 10th  
## 757 HP Pavilion AMD Ryzen 5 other  
## 758 ASUS VivoBook AMD Ryzen 5 other  
## 759 HP Pavilion AMD Ryzen 5 other  
## 760 HP Pavilion AMD Ryzen 5 other  
## 761 HP Envy AMD Ryzen 5 other  
## 762 HP Pavilion AMD Ryzen 5 other  
## 763 ASUS Ryzen AMD Ryzen 5 other  
## 764 DELL Inspiron AMD Ryzen 5 other  
## 765 DELL Vostro AMD Ryzen 5 other  
## 766 HP Envy AMD Ryzen 5 other  
## 767 DELL Inspiron AMD Ryzen 5 other  
## 768 DELL G5 AMD Ryzen 5 other  
## 769 Lenovo Yoga AMD Ryzen 5 other  
## 770 ASUS VivoBook AMD Ryzen 5 other  
## 771 HP Ryzen AMD Ryzen 5 other  
## 772 Lenovo Yoga AMD Ryzen 5 other  
## 773 HP Pavilion AMD Ryzen 5 other  
## 774 ASUS Zenbook AMD Ryzen 5 other  
## 775 HP Pavilion AMD Ryzen 5 other  
## 776 acer Aspire AMD Ryzen 5 other  
## 777 HP 15s AMD Ryzen 5 other  
## 778 Lenovo Legion AMD Ryzen 5 other  
## 779 DELL Ryzen AMD Ryzen 5 other  
## 780 MSI Modern AMD Ryzen 5 other  
## 781 acer Aspire AMD Ryzen 5 other  
## 782 HP Ryzen AMD Ryzen 5 other  
## 783 acer Aspire AMD Ryzen 5 other  
## 784 HP 14s AMD Ryzen 5 other  
## 785 Vaio E AMD Ryzen 5 other  
## 786 ASUS Ryzen AMD Ryzen 5 other  
## 787 acer Aspire AMD Ryzen 5 other  
## 788 ASUS AMD AMD Ryzen 5 other  
## 789 Lenovo IDEAPAD AMD Ryzen 5 other  
## 790 HP 15s AMD Ryzen 5 other  
## 791 DELL Inspiron AMD Ryzen 5 other  
## 792 HP Ryzen AMD Ryzen 5 other  
## 793 ASUS VivoBook AMD Ryzen 5 other  
## 794 Vaio E AMD Ryzen 5 other  
## 795 HP Pavilion AMD Ryzen 5 other  
## 796 HP Pavilion AMD Ryzen 5 other  
## 797 DELL Ryzen AMD Ryzen 5 other  
## 798 Lenovo Yoga AMD Ryzen 5 other  
## 799 HP Pavilion AMD Ryzen 5 other  
## 800 DELL Inspiron AMD Ryzen 5 other  
## 801 ASUS VivoBook AMD Ryzen 5 other  
## 802 Lenovo Legion AMD Ryzen 5 other  
## 803 ASUS VivoBook AMD Ryzen 5 other  
## 804 ASUS VivoBook AMD Ryzen 5 other  
## 805 Lenovo Ideapad AMD Ryzen 5 other  
## 806 HP Pavilion AMD Ryzen 5 other  
## 807 DELL Ryzen AMD Ryzen 5 other  
## 808 ASUS VivoBook AMD Ryzen 5 other  
## 809 HP Ryzen AMD Ryzen 5 other  
## 810 ASUS Ryzen AMD Ryzen 5 other  
## 811 ASUS ASUS AMD Ryzen 7 other  
## 812 ASUS Ryzen AMD Ryzen 7 other  
## 813 ASUS ROG AMD Ryzen 7 other  
## 814 ASUS ROG AMD Ryzen 7 other  
## 815 Lenovo Lenovo AMD Ryzen 7 other  
## 816 ASUS Ryzen AMD Ryzen 7 other  
## 817 DELL Ryzen AMD Ryzen 7 other  
## 818 ASUS ASUS AMD Ryzen 7 other  
## 819 ASUS ROG AMD Ryzen 7 other  
## 820 ASUS VivoBook AMD Ryzen 7 other  
## 821 Lenovo IdeaPad Intel Ryzen 7 other  
## 822 ASUS VivoBook AMD Ryzen 7 other  
## 823 MSI Modern AMD Ryzen 7 other  
## 824 Lenovo Ideapad AMD Ryzen 7 other  
## 825 Lenovo Ryzen AMD Ryzen 7 other  
## 826 HP Pavilion AMD Ryzen 7 other  
## 827 Vaio E AMD Ryzen 7 other  
## 828 ASUS VivoBook AMD Ryzen 7 other  
## 829 Lenovo Ideapad AMD Ryzen 7 other  
## 830 HP Ryzen AMD Ryzen 7 other  
## 831 ASUS Ryzen AMD Ryzen 7 other  
## 832 Lenovo Yoga AMD Ryzen 7 other  
## 833 acer Aspire AMD Ryzen 7 other  
## 834 ASUS ROG AMD Ryzen 7 other  
## 835 HP Ryzen AMD Ryzen 7 other  
## 836 DELL G5 AMD Ryzen 7 other  
## 837 Lenovo Yoga AMD Ryzen 7 other  
## 838 Lenovo Ryzen AMD Ryzen 7 other  
## 839 Lenovo Ryzen AMD Ryzen 7 other  
## 840 ASUS Ryzen AMD Ryzen 7 other  
## 841 DELL Inspiron AMD Ryzen 7 other  
## 842 HP 15s AMD Ryzen 7 other  
## 843 Lenovo Ideapad AMD Ryzen 7 other  
## 844 Vaio E AMD Ryzen 7 other  
## 845 HP Pavilion AMD Ryzen 7 other  
## 846 HP Pavilion AMD Ryzen 7 other  
## 847 MSI Alpha AMD Ryzen 7 other  
## 848 ASUS ROG AMD Ryzen 7 other  
## 849 HP HP AMD Ryzen 7 other  
## 850 HP Pavilion AMD Ryzen 7 other  
## 851 ASUS Zenbook AMD Ryzen 7 other  
## 852 ASUS ROG AMD Ryzen 7 other  
## 853 acer Swift AMD Ryzen 7 other  
## 854 ASUS TUF AMD Ryzen 7 other  
## 855 HP OMEN AMD Ryzen 7 other  
## 856 ASUS ROG AMD Ryzen 7 other  
## 857 Lenovo Legion AMD Ryzen 7 other  
## 858 ASUS VivoBook AMD Ryzen 7 other  
## 859 ASUS ROG AMD Ryzen 7 other  
## 860 Lenovo Ideapad AMD Ryzen 7 other  
## 861 ASUS ROG AMD Ryzen 7 other  
## 862 ASUS ROG AMD Ryzen 7 other  
## 863 ASUS Zephyrus AMD Ryzen 7 other  
## 864 ASUS Ryzen AMD Ryzen 7 other  
## 865 HP Pavilion AMD Ryzen 7 other  
## 866 acer Nitro AMD Ryzen 7 other  
## 867 acer Nitro AMD Ryzen 7 other  
## 868 Lenovo Ryzen AMD Ryzen 7 other  
## 869 ASUS ROG AMD Ryzen 9 other  
## 870 ASUS ROG AMD Ryzen 9 other  
## 871 ASUS ROG AMD Ryzen 9 other  
## 872 ASUS ROG AMD Ryzen 9 other  
## 873 ASUS ROG AMD Ryzen 9 other  
## 874 ASUS ROG AMD Ryzen 9 other  
## 875 MSI Delta AMD Ryzen 9 other  
## 876 ASUS VivoBook AMD Ryzen 9 other  
## 877 ASUS ROG AMD Ryzen 9 other  
## 878 ASUS ROG AMD Ryzen 9 other  
## 879 ASUS Zenbook AMD Ryzen 9 other  
## 880 HP OMEN AMD Ryzen 9 other  
## 881 ASUS Rog AMD Ryzen 9 other  
## 882 ASUS ROG AMD Ryzen 9 other  
## 883 ASUS Zephyrus AMD Ryzen 9 other  
## 884 ASUS ROG AMD Ryzen 9 other  
## 885 ASUS ROG AMD Ryzen 9 other  
## 886 ASUS VivoBook AMD Ryzen 9 other  
## 887 ASUS VivoBook AMD Ryzen 9 other  
## 888 ASUS VivoBook AMD Ryzen 9 other  
## 889 ASUS Ryzen AMD Ryzen 9 other  
## 890 ASUS ROG AMD Ryzen 9 other  
## 891 ASUS ROG AMD Ryzen 9 other  
## 892 ASUS ROG AMD Ryzen 9 other  
## 893 ASUS Ryzen AMD Ryzen 9 other  
## 894 ASUS Ryzen AMD Ryzen 9 other  
## 895 SAMSUNG Galaxy Qualcomm Snapdragon 7c other  
## 896 Lenovo Thinkpad AMD Ryzen 5 other  
## ram\_gb ram\_type ssd hdd os os\_bit graphic\_card\_gb weight  
## 1 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 2 4 DDR4 0 512 Windows 64 0 Casual  
## 3 4 DDR4 128 0 Windows 64 0 ThinNlight  
## 4 4 DDR4 128 0 Windows 64 0 ThinNlight  
## 5 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 6 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 7 4 DDR4 0 1024 Windows 32 0 Casual  
## 8 4 DDR4 0 1024 Windows 64 0 Casual  
## 9 32 DDR4 32 0 Windows 32 4 Casual  
## 10 4 DDR4 256 0 Windows 64 0 Casual  
## 11 4 DDR4 0 1024 Windows 64 0 Casual  
## 12 4 DDR4 0 1024 Windows 64 0 Casual  
## 13 4 DDR4 0 1024 Windows 64 0 Casual  
## 14 8 DDR4 512 0 Windows 32 2 Casual  
## 15 4 DDR4 0 512 Windows 64 0 Casual  
## 16 4 DDR4 0 512 Windows 64 0 Casual  
## 17 4 DDR4 0 512 Windows 32 0 Casual  
## 18 8 DDR4 0 1024 Windows 32 2 Casual  
## 19 4 DDR4 0 1024 Windows 32 0 Casual  
## 20 4 DDR4 0 512 Windows 32 4 Casual  
## 21 4 DDR4 0 512 Windows 32 4 Casual  
## 22 4 DDR4 0 512 Windows 32 6 Casual  
## 23 4 DDR4 0 512 Windows 32 4 Casual  
## 24 4 DDR4 0 512 Windows 64 0 Casual  
## 25 4 DDR4 0 512 Windows 64 0 Casual  
## 26 4 DDR4 256 0 Windows 64 0 Casual  
## 27 8 DDR4 256 0 Windows 64 0 Casual  
## 28 8 DDR4 256 0 Windows 64 0 Casual  
## 29 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 30 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 31 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 32 4 DDR4 256 0 Windows 64 0 Casual  
## 33 4 DDR4 0 1024 Windows 64 0 Casual  
## 34 4 DDR4 0 1024 Windows 64 0 Casual  
## 35 4 DDR4 0 1024 Windows 32 2 Casual  
## 36 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 37 8 DDR4 256 0 Windows 32 0 ThinNlight  
## 38 4 DDR4 256 0 Windows 32 0 Casual  
## 39 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 40 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 41 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 42 8 DDR4 256 0 Windows 32 0 ThinNlight  
## 43 8 DDR4 256 0 Windows 64 0 Casual  
## 44 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 45 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 46 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 47 8 DDR4 256 0 Windows 64 0 Casual  
## 48 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 49 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 50 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 51 8 DDR4 256 0 Windows 64 0 Casual  
## 52 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 53 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 54 8 LPDDR4X 256 0 Windows 64 0 ThinNlight  
## 55 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 56 8 DDR4 256 0 Windows 64 0 Casual  
## 57 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 58 4 DDR4 256 0 Windows 64 0 Casual  
## 59 4 DDR4 256 0 Windows 64 0 Casual  
## 60 8 DDR4 256 0 Windows 64 0 Casual  
## 61 8 DDR4 256 0 Windows 64 0 Casual  
## 62 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 63 8 DDR4 256 0 Windows 64 0 Casual  
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## 65 8 DDR4 256 0 Windows 64 0 ThinNlight  
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## 67 8 LPDDR4X 256 0 Windows 64 0 ThinNlight  
## 68 8 DDR4 256 0 Windows 64 0 Casual  
## 69 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 70 4 DDR4 256 0 Windows 64 0 Casual  
## 71 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 72 8 DDR4 256 0 Windows 32 0 Casual  
## 73 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 74 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 75 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 76 4 DDR4 256 0 Windows 64 0 Casual  
## 77 4 DDR4 256 0 Windows 64 0 Casual  
## 78 4 DDR4 256 0 Windows 32 0 Casual  
## 79 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 80 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 81 4 DDR4 0 512 Windows 32 0 Casual  
## 82 4 DDR4 256 0 Windows 64 0 Casual  
## 83 4 DDR4 256 0 Windows 64 0 Casual  
## 84 4 DDR4 256 0 Windows 64 0 Casual  
## 85 4 DDR4 256 0 Windows 32 0 Casual  
## 86 4 DDR4 256 0 Windows 64 0 Casual  
## 87 4 DDR4 256 0 Windows 32 0 Casual  
## 88 4 DDR4 256 0 Windows 64 0 Casual  
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## 90 4 DDR4 256 0 Windows 32 0 Casual  
## 91 4 DDR4 256 0 Windows 32 0 Casual  
## 92 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 93 4 DDR4 256 0 Windows 32 0 Casual  
## 94 4 DDR4 256 0 Windows 64 0 Casual  
## 95 4 DDR4 256 0 Windows 32 0 Casual  
## 96 4 DDR4 256 0 Windows 64 0 ThinNlight  
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## 102 4 DDR4 256 0 Windows 64 0 Casual  
## 103 8 DDR4 512 0 Windows 64 0 Casual  
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## 105 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 106 4 DDR4 512 0 Windows 64 0 Casual  
## 107 8 DDR4 512 0 Windows 32 0 ThinNlight  
## 108 8 DDR4 512 0 Windows 64 0 Casual  
## 109 8 LPDDR4X 512 0 Windows 32 0 Casual  
## 110 8 DDR4 512 0 Windows 64 0 Casual  
## 111 8 DDR4 512 0 Windows 64 0 Casual  
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## 122 8 DDR4 512 0 Windows 64 0 Casual  
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## 126 8 DDR4 512 0 Windows 64 0 Casual  
## 127 8 DDR4 512 0 Windows 64 0 Casual  
## 128 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 129 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 130 8 DDR4 512 0 Windows 64 0 ThinNlight  
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## 133 4 DDR4 512 0 Windows 32 0 Casual  
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## 135 4 DDR4 512 0 Windows 64 0 Casual  
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## 139 4 DDR4 512 0 Windows 64 0 Casual  
## 140 4 DDR4 512 0 Windows 64 0 Casual  
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## 142 4 DDR4 512 0 Windows 64 0 ThinNlight  
## 143 4 DDR4 512 0 Windows 64 0 Casual  
## 144 4 DDR4 512 0 Windows 64 0 Casual  
## 145 4 DDR4 512 0 Windows 64 0 Casual  
## 146 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 147 8 DDR4 512 0 Windows 64 0 Casual  
## 148 8 DDR4 0 1024 Windows 64 0 Casual  
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## 153 8 DDR4 0 1024 Windows 64 0 ThinNlight  
## 154 4 DDR4 0 1024 Windows 64 0 Casual  
## 155 8 DDR4 0 1024 Windows 32 0 Casual  
## 156 8 DDR4 0 1024 Windows 32 0 Casual  
## 157 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 158 8 DDR4 0 1024 Windows 64 0 Casual  
## 159 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 160 4 DDR4 0 1024 Windows 32 0 Casual  
## 161 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 162 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 163 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 164 4 DDR4 0 1024 Windows 32 0 Casual  
## 165 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 166 4 DDR4 0 1024 Windows 32 0 ThinNlight  
## 167 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 168 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 169 4 DDR4 0 1024 Windows 32 0 ThinNlight  
## 170 4 DDR4 0 1024 Windows 64 0 Casual  
## 171 4 LPDDR4 0 512 Windows 32 0 Casual  
## 172 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 173 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 174 4 DDR4 0 1024 Windows 64 0 Casual  
## 175 8 DDR4 0 1024 Windows 64 0 ThinNlight  
## 176 8 DDR4 0 1024 Windows 64 2 Casual  
## 177 8 DDR4 0 1024 Windows 32 0 Casual  
## 178 8 DDR4 0 1024 Windows 32 0 Casual  
## 179 4 DDR4 0 1024 Windows 32 0 Casual  
## 180 8 DDR4 0 1024 Windows 32 0 Casual  
## 181 4 LPDDR4 0 512 Windows 32 0 Casual  
## 182 8 DDR4 0 1024 Windows 32 0 Casual  
## 183 8 DDR4 0 1024 Windows 64 0 Casual  
## 184 8 DDR4 0 1024 Windows 64 0 Casual  
## 185 4 LPDDR4 0 512 Windows 32 0 Casual  
## 186 8 DDR4 0 1024 Windows 64 0 ThinNlight  
## 187 4 DDR4 0 1024 Windows 64 0 ThinNlight  
## 188 4 LPDDR4 0 512 Windows 32 0 Casual  
## 189 8 DDR4 256 1024 Windows 64 0 ThinNlight  
## 190 8 DDR4 256 1024 Windows 64 0 Casual  
## 191 8 DDR4 256 1024 Windows 64 0 Casual  
## 192 8 DDR4 256 1024 Windows 64 0 Casual  
## 193 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 194 8 DDR4 256 1024 Windows 64 0 Casual  
## 195 8 DDR4 256 1024 Windows 64 0 ThinNlight  
## 196 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 197 4 DDR4 256 1024 Windows 64 0 Casual  
## 198 4 DDR4 256 1024 Windows 64 0 Casual  
## 199 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 200 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 201 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 202 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 203 4 DDR4 256 1024 Windows 64 0 Casual  
## 204 4 DDR4 256 1024 Windows 64 0 ThinNlight  
## 205 8 DDR4 256 1024 Windows 64 0 ThinNlight  
## 206 4 LPDDR4 0 512 Windows 64 0 Casual  
## 207 4 LPDDR4 0 512 Windows 32 0 Casual  
## 208 4 DDR4 0 512 Windows 64 0 Casual  
## 209 4 DDR4 0 512 Windows 64 0 Casual  
## 210 4 DDR4 0 1024 Windows 32 0 Casual  
## 211 4 LPDDR4X 0 512 Windows 64 0 Casual  
## 212 4 LPDDR4 0 512 Windows 32 0 Casual  
## 213 4 LPDDR4 0 512 Windows 32 0 Casual  
## 214 4 DDR4 0 512 Windows 32 0 Casual  
## 215 8 DDR5 0 512 Windows 32 4 Casual  
## 216 8 LPDDR4 0 512 Windows 32 0 Casual  
## 217 8 LPDDR4 0 512 DOS 32 0 Casual  
## 218 8 LPDDR4 0 512 DOS 32 4 Casual  
## 219 8 LPDDR4 0 512 DOS 32 4 Casual  
## 220 8 LPDDR4 0 512 DOS 32 0 ThinNlight  
## 221 8 LPDDR4 0 512 DOS 32 0 ThinNlight  
## 222 8 LPDDR4 0 512 DOS 32 4 Casual  
## 223 8 LPDDR4 0 512 DOS 32 0 Casual  
## 224 8 LPDDR4 0 512 DOS 32 2 Casual  
## 225 8 LPDDR4X 128 0 Windows 64 0 Casual  
## 226 8 DDR3 128 0 Windows 64 0 Casual  
## 227 8 DDR3 128 0 Windows 64 0 Casual  
## 228 4 DDR3 128 0 Windows 64 0 Casual  
## 229 8 DDR4 128 0 Windows 64 0 ThinNlight  
## 230 8 DDR4 256 0 Windows 64 0 Casual  
## 231 8 LPDDR4 0 512 DOS 32 0 Casual  
## 232 8 DDR3 256 0 Windows 64 0 ThinNlight  
## 233 8 DDR4 256 0 Windows 64 0 Casual  
## 234 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 235 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 236 8 DDR4 256 0 Windows 64 0 Casual  
## 237 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 238 8 DDR3 256 0 Windows 64 0 ThinNlight  
## 239 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 240 8 DDR4 256 0 Windows 64 0 Casual  
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## 242 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 243 8 DDR4 256 0 Windows 64 0 Casual  
## 244 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 245 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 246 8 DDR4 512 0 Windows 64 0 Casual  
## 247 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 248 8 DDR4 512 0 Windows 64 4 Gaming  
## 249 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 250 8 DDR4 512 0 Windows 64 0 Casual  
## 251 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 252 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 253 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 254 8 DDR4 512 0 Windows 32 0 ThinNlight  
## 255 8 LPDDR4X 512 0 Windows 32 0 Casual  
## 256 8 DDR4 512 0 Windows 64 0 Casual  
## 257 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 258 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 259 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 260 8 DDR4 512 0 Windows 64 4 Gaming  
## 261 8 DDR4 512 0 Windows 64 0 Casual  
## 262 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 263 8 DDR4 512 0 Windows 32 0 ThinNlight  
## 264 8 DDR4 512 0 Windows 64 4 Gaming  
## 265 16 DDR4 512 0 Windows 64 4 Casual  
## 266 16 DDR4 512 0 Windows 64 6 Gaming  
## 267 8 DDR4 512 0 Windows 64 4 Casual  
## 268 8 DDR4 512 0 Windows 64 4 Gaming  
## 269 8 DDR4 512 0 Windows 64 0 Casual  
## 270 8 DDR4 512 0 Windows 64 0 Casual  
## 271 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 272 16 DDR4 512 0 Windows 64 0 Casual  
## 273 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 274 16 DDR4 512 0 Windows 64 4 Casual  
## 275 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 276 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 277 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 278 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 279 16 DDR4 512 0 Windows 64 0 Casual  
## 280 16 DDR4 512 0 Windows 64 6 Casual  
## 281 8 DDR4 512 0 Windows 64 2 Casual  
## 282 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 283 8 DDR4 512 0 Windows 64 0 Casual  
## 284 8 DDR4 512 0 Windows 64 2 ThinNlight  
## 285 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 286 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 287 8 DDR4 512 0 Windows 64 4 Gaming  
## 288 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 289 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 290 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 291 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 292 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 293 8 DDR4 512 0 Windows 32 0 ThinNlight  
## 294 16 DDR4 512 0 Windows 64 4 Casual  
## 295 8 DDR4 512 0 Windows 64 4 Gaming  
## 296 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 297 16 DDR4 512 0 Windows 64 0 Casual  
## 298 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 299 16 DDR4 512 0 Windows 64 0 Casual  
## 300 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 301 16 DDR4 512 0 Windows 64 2 Casual  
## 302 16 DDR4 512 0 Windows 64 0 Casual  
## 303 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 304 8 DDR4 512 0 Windows 64 0 Casual  
## 305 8 DDR4 512 0 Windows 64 4 Casual  
## 306 16 DDR4 512 0 Windows 64 2 Casual  
## 307 16 DDR4 512 0 Windows 64 2 Casual  
## 308 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 309 16 DDR4 512 0 Windows 64 0 Casual  
## 310 8 DDR4 512 0 Windows 64 2 Casual  
## 311 8 DDR4 512 0 Windows 64 2 Casual  
## 312 8 DDR4 512 0 Windows 64 0 Casual  
## 313 16 DDR4 512 0 Windows 64 0 ThinNlight  
## 314 16 DDR4 512 0 Windows 64 0 Casual  
## 315 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 316 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 317 8 DDR4 512 0 Windows 64 0 Casual  
## 318 8 DDR4 512 0 Windows 32 6 Casual  
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## 320 8 DDR4 512 0 Windows 64 4 Gaming  
## 321 8 DDR4 512 0 Windows 64 0 Casual  
## 322 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 323 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 324 8 DDR4 512 0 Windows 64 0 Casual  
## 325 8 DDR4 512 0 Windows 32 0 Casual  
## 326 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 327 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 328 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 329 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 330 8 DDR4 512 0 Windows 64 0 Casual  
## 331 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 332 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 333 8 DDR4 512 0 Windows 64 2 Casual  
## 334 8 LPDDR4X 512 0 Windows 32 0 Casual  
## 335 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 336 8 DDR4 512 0 Windows 64 4 Casual  
## 337 8 LPDDR3 512 0 Windows 64 0 Casual  
## 338 8 DDR4 512 0 Windows 64 0 Casual  
## 339 8 DDR4 512 0 Windows 64 2 ThinNlight  
## 340 8 DDR4 512 0 Windows 64 0 Casual  
## 341 8 DDR4 512 0 Windows 64 0 Casual  
## 342 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 343 8 DDR4 512 0 Windows 64 2 ThinNlight  
## 344 8 LPDDR4X 512 0 Mac 64 0 Casual  
## 345 8 DDR3 512 0 Mac 64 0 Casual  
## 346 8 DDR4 512 0 Windows 64 4 Casual  
## 347 8 DDR4 512 0 Windows 64 0 Casual  
## 348 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 349 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 350 8 DDR4 512 0 Windows 64 4 Gaming  
## 351 8 DDR4 512 0 Windows 64 4 Casual  
## 352 8 DDR4 512 0 Windows 32 2 Casual  
## 353 8 DDR4 512 0 Windows 64 0 Casual  
## 354 8 DDR4 512 0 Windows 64 0 Casual  
## 355 8 DDR4 512 0 Windows 64 4 Gaming  
## 356 8 DDR4 512 0 Windows 64 0 Casual  
## 357 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 358 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 359 8 LPDDR4X 512 0 Windows 64 2 Casual  
## 360 8 DDR4 512 0 Windows 64 4 Casual  
## 361 8 DDR4 512 0 Windows 64 4 Casual  
## 362 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 363 8 LPDDR3 512 0 Windows 64 0 ThinNlight  
## 364 8 DDR3 512 0 Windows 64 0 ThinNlight  
## 365 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 366 8 DDR4 512 0 Windows 64 2 Casual  
## 367 8 DDR4 512 0 Windows 64 0 Casual  
## 368 8 DDR4 512 0 Windows 64 0 Casual  
## 369 8 DDR4 512 0 Windows 64 0 Casual  
## 370 8 DDR4 512 0 Windows 64 2 Casual  
## 371 8 DDR4 512 0 Windows 64 2 Casual  
## 372 8 DDR4 512 0 Windows 64 0 Casual  
## 373 8 DDR4 512 0 Windows 64 2 Casual  
## 374 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 375 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 376 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 377 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 378 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 379 8 DDR4 512 0 Windows 64 0 Casual  
## 380 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 381 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 382 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 383 8 DDR4 512 0 Windows 64 0 Casual  
## 384 8 DDR4 512 0 Windows 32 2 Casual  
## 385 8 DDR4 512 0 Windows 64 2 ThinNlight  
## 386 8 DDR4 512 0 Windows 32 4 Casual  
## 387 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 388 8 DDR4 512 0 Windows 64 2 Casual  
## 389 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 390 8 LPDDR4X 512 0 Windows 64 0 ThinNlight  
## 391 8 DDR4 512 0 Windows 64 4 Gaming  
## 392 8 DDR4 512 0 Windows 64 4 Casual  
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## 394 8 DDR4 512 0 Windows 64 0 Casual  
## 395 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 396 8 DDR4 512 0 Windows 64 0 Casual  
## 397 8 LPDDR4 512 0 Windows 64 0 ThinNlight  
## 398 8 DDR4 512 0 Windows 32 2 Casual  
## 399 8 DDR4 512 0 Windows 64 0 Casual  
## 400 8 LPDDR4 0 512 DOS 32 0 Casual  
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## 402 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 403 8 DDR4 512 0 Windows 64 2 Casual  
## 404 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 405 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 406 8 DDR4 512 0 Windows 64 2 Casual  
## 407 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 408 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 409 8 DDR5 512 0 Windows 32 6 Casual  
## 410 8 DDR4 512 0 Windows 64 2 Casual  
## 411 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 412 8 DDR4 512 0 Windows 64 2 Casual  
## 413 8 DDR4 512 0 Windows 64 2 Casual  
## 414 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 415 8 DDR4 512 0 Windows 32 0 Casual  
## 416 8 DDR4 512 0 Windows 64 2 Casual  
## 417 8 LPDDR4X 512 0 Windows 64 0 Casual  
## 418 8 DDR4 512 0 Windows 64 0 ThinNlight  
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## 420 8 LPDDR3 512 0 Windows 64 2 Casual  
## 421 8 LPDDR3 512 0 Windows 64 0 Casual  
## 422 8 DDR4 512 0 Windows 64 2 Casual  
## 423 8 DDR4 512 0 Windows 64 0 Casual  
## 424 8 DDR4 512 0 Windows 64 0 Casual  
## 425 8 LPDDR3 512 0 Windows 64 0 Casual  
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## 427 8 DDR4 512 0 Windows 64 4 Gaming  
## 428 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 429 16 DDR4 512 0 Windows 64 0 ThinNlight  
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## 431 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 432 8 DDR4 512 0 Windows 64 4 Casual  
## 433 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 434 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 435 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 436 8 DDR4 512 0 Windows 64 0 Casual  
## 437 8 DDR4 512 0 Windows 64 2 Casual  
## 438 16 DDR4 512 0 Windows 64 2 Casual  
## 439 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 440 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 441 16 DDR4 512 0 Windows 64 4 Casual  
## 442 8 DDR4 512 0 Windows 64 0 ThinNlight  
## 443 8 DDR4 512 0 Windows 64 4 Casual  
## 444 8 DDR4 512 0 Windows 32 2 Casual  
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## 446 8 DDR4 1024 0 Windows 64 4 Gaming  
## 447 8 DDR4 1024 0 Windows 64 4 Casual  
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## 449 16 LPDDR4X 1024 0 Mac 64 0 Casual  
## 450 8 DDR4 1024 0 Windows 64 4 Casual  
## 451 8 DDR4 1024 0 Windows 64 4 Casual  
## 452 8 DDR4 1024 0 Windows 64 4 Casual  
## 453 8 LPDDR4X 1024 0 Windows 64 0 ThinNlight  
## 454 8 DDR4 1024 0 Windows 64 0 ThinNlight  
## 455 8 DDR4 512 512 Windows 64 0 ThinNlight  
## 456 8 DDR4 512 512 Windows 64 0 ThinNlight  
## 457 8 DDR4 0 1024 Windows 64 0 Casual  
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## 459 8 DDR4 0 1024 Windows 64 0 ThinNlight  
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## 461 8 DDR4 0 1024 Windows 64 0 ThinNlight  
## 462 8 DDR4 0 1024 Windows 64 4 Casual  
## 463 8 DDR4 0 1024 Windows 32 2 Casual  
## 464 8 DDR3 0 1024 Windows 64 0 Casual  
## 465 8 DDR4 0 1024 Windows 64 4 Casual  
## 466 8 DDR4 0 1024 Windows 64 2 ThinNlight  
## 467 8 DDR4 0 1024 Windows 32 0 Casual  
## 468 8 DDR4 0 1024 Windows 64 0 Casual  
## 469 8 DDR4 0 1024 Windows 64 0 ThinNlight  
## 470 8 DDR4 0 1024 Windows 64 0 ThinNlight  
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## 472 8 DDR4 0 1024 Windows 32 0 Casual  
## 473 8 DDR4 0 1024 Windows 64 2 Casual  
## 474 8 LPDDR4 0 512 DOS 32 6 Casual  
## 475 8 LPDDR4 0 512 DOS 32 6 Casual  
## 476 8 LPDDR4 0 512 DOS 32 8 Casual  
## 477 8 DDR4 0 1024 Windows 64 2 Casual  
## 478 8 DDR4 0 1024 Windows 64 0 Casual  
## 479 4 DDR4 0 1024 Windows 64 0 Casual  
## 480 8 DDR4 0 1024 Windows 64 2 Casual  
## 481 8 DDR4 0 1024 Windows 32 0 Casual  
## 482 8 DDR4 0 1024 Windows 64 2 Casual  
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## 484 8 DDR4 256 1024 Windows 64 4 Gaming  
## 485 8 DDR4 256 1024 Windows 64 0 Casual  
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## 487 8 DDR4 256 1024 Windows 64 0 Casual  
## 488 8 DDR4 256 1024 Windows 64 0 ThinNlight  
## 489 8 DDR4 256 1024 Windows 64 0 Casual  
## 490 8 DDR4 256 1024 Windows 64 2 Casual  
## 491 16 DDR4 256 1024 Windows 64 0 Casual  
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## 494 8 DDR4 256 1024 Windows 64 4 Gaming  
## 495 8 DDR4 256 1024 Windows 64 4 Casual  
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## 499 8 DDR4 256 1024 Windows 64 0 ThinNlight  
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## 502 8 DDR4 256 1024 Windows 64 2 Casual  
## 503 8 DDR4 256 1024 Windows 64 0 Casual  
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## 505 8 DDR4 256 1024 Windows 64 4 Gaming  
## 506 8 DDR4 256 1024 Windows 32 2 Casual  
## 507 8 DDR4 256 1024 Windows 64 0 Casual  
## 508 8 DDR4 256 1024 Windows 64 2 Casual  
## 509 8 DDR4 256 1024 Windows 64 4 Casual  
## 510 8 DDR4 256 1024 Windows 64 2 Casual  
## 511 8 DDR4 256 1024 Windows 64 0 ThinNlight  
## 512 8 DDR4 256 1024 Windows 64 0 Casual  
## 513 8 DDR4 256 1024 Windows 64 4 Gaming  
## 514 8 DDR4 256 1024 Windows 64 0 Casual  
## 515 8 DDR4 256 1024 Windows 64 2 Casual  
## 516 16 DDR4 256 1024 Windows 64 0 Casual  
## 517 8 DDR4 0 2048 Windows 64 2 Casual  
## 518 8 LPDDR4 0 512 DOS 32 8 Casual  
## 519 16 DDR4 256 0 Windows 64 4 Casual  
## 520 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 521 8 DDR4 256 0 Windows 64 0 ThinNlight  
## 522 8 DDR4 256 0 Windows 64 0 ThinNlight  
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## 529 8 DDR4 512 0 Windows 64 4 Gaming  
## 530 8 DDR4 512 0 Windows 64 2 Casual  
## 531 16 DDR4 512 0 Windows 64 0 Casual  
## 532 16 DDR4 512 0 Windows 64 4 Casual  
## 533 16 LPDDR4X 512 0 Windows 64 8 Casual  
## 534 8 DDR4 512 0 Windows 64 0 Casual  
## 535 8 DDR4 512 0 Windows 64 4 Gaming  
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## 537 16 LPDDR4X 512 0 Windows 64 0 Casual  
## 538 16 DDR4 512 0 Windows 64 0 Casual  
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## 542 16 DDR4 512 0 Windows 64 4 Gaming  
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## 548 16 DDR4 512 0 Windows 64 4 Casual  
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## 550 16 LPDDR3 512 0 Windows 64 0 Casual  
## 551 16 DDR4 512 0 Windows 64 2 Casual  
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## 553 16 LPDDR3 512 0 Windows 64 0 ThinNlight  
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## 555 16 DDR4 512 0 Windows 64 4 Gaming  
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## 557 16 LPDDR4X 512 0 Windows 64 0 ThinNlight  
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## 565 16 DDR3 512 0 Windows 64 0 ThinNlight  
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## 567 16 LPDDR4X 512 0 Windows 64 0 ThinNlight  
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## 570 16 DDR4 512 0 Windows 32 0 Casual  
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## 574 8 LPDDR3 512 0 Windows 64 0 ThinNlight  
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## 576 16 DDR4 1024 0 Windows 64 6 Casual  
## 577 16 LPDDR4X 1024 0 Windows 64 2 Casual  
## 578 16 LPDDR4X 1024 0 Windows 64 0 Casual  
## 579 16 DDR4 1024 0 Windows 64 4 Gaming  
## 580 16 DDR4 1024 0 Windows 64 6 Casual  
## 581 16 LPDDR4X 1024 0 Windows 64 0 ThinNlight  
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## 583 16 DDR4 1024 0 Windows 32 4 Casual  
## 584 16 LPDDR3 1024 0 Windows 64 2 Casual  
## 585 16 DDR4 1024 0 Windows 64 2 Casual  
## 586 16 DDR4 1024 0 Windows 64 0 Casual  
## 587 16 DDR4 1024 0 Windows 64 4 Casual  
## 588 16 LPDDR4X 1024 0 Windows 64 0 Casual  
## 589 16 DDR4 1024 0 Windows 64 6 Casual  
## 590 16 DDR5 1024 0 Windows 64 8 Casual  
## 591 16 DDR4 1024 0 Windows 64 4 Casual  
## 592 16 DDR4 1024 0 Windows 64 4 Casual  
## 593 16 DDR4 1024 0 Windows 64 6 Casual  
## 594 16 DDR4 1024 0 Windows 64 8 Casual  
## 595 16 LPDDR4X 1024 0 Windows 64 0 Casual  
## 596 16 DDR4 1024 0 Windows 64 6 Casual  
## 597 16 DDR4 1024 0 Windows 64 6 Casual  
## 598 16 DDR4 1024 0 Windows 64 8 Casual  
## 599 16 DDR4 1024 0 Windows 64 2 Casual  
## 600 16 DDR4 1024 0 Windows 64 8 Casual  
## 601 16 LPDDR4X 1024 0 Windows 64 0 Casual  
## 602 16 DDR4 1024 0 Windows 64 0 Casual  
## 603 16 LPDDR4X 1024 0 Windows 64 0 Casual  
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## 605 16 DDR4 1024 0 Windows 32 6 Casual  
## 606 16 DDR4 1024 0 Windows 64 4 ThinNlight  
## 607 16 DDR4 1024 0 Windows 64 6 Casual  
## 608 16 LPDDR3 1024 0 Windows 64 0 Casual  
## 609 16 LPDDR3 1024 0 Windows 64 0 Casual  
## 610 16 LPDDR4X 1024 0 Windows 64 0 ThinNlight  
## 611 16 LPDDR3 1024 0 Windows 64 0 Casual  
## 612 16 LPDDR4X 1024 0 Windows 64 0 Casual  
## 613 16 DDR4 1024 0 Windows 64 0 ThinNlight  
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## 617 16 DDR4 1024 0 Windows 64 8 Casual  
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## 623 16 DDR4 256 1024 Windows 64 4 Gaming  
## 624 16 DDR4 256 1024 Windows 32 0 ThinNlight  
## 625 16 DDR4 256 1024 Windows 64 6 Casual  
## 626 16 DDR4 256 1024 Windows 64 4 Casual  
## 627 16 DDR4 256 1024 Windows 64 0 ThinNlight  
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## 629 16 DDR4 512 1024 Windows 32 6 Casual  
## 630 32 DDR4 1024 0 Windows 64 8 Casual  
## 631 16 DDR4 1024 0 Windows 64 6 Casual  
## 632 16 DDR4 1024 0 Windows 64 6 Casual  
## 633 16 DDR5 1024 0 Windows 64 6 Casual  
## 634 16 DDR4 1024 0 Windows 64 6 Casual  
## 635 16 DDR4 1024 0 Windows 64 6 Gaming  
## 636 16 DDR4 1024 0 Windows 32 8 Casual  
## 637 16 DDR4 3072 0 Windows 32 6 Casual  
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## 643 8 LPDDR4 0 512 DOS 32 4 Casual  
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## 647 4 DDR4 0 512 DOS 64 4 Casual  
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## 649 8 LPDDR4 0 512 DOS 32 4 Casual  
## 650 8 LPDDR4 0 512 DOS 32 8 Casual  
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## 652 8 LPDDR4 0 512 DOS 32 8 Casual  
## 653 4 DDR4 0 512 DOS 32 4 Casual  
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## 657 8 DDR4 256 0 Mac 64 0 Casual  
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## 659 8 DDR4 256 0 Mac 64 0 Casual  
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## 677 16 DDR4 1024 0 Mac 64 0 Casual  
## 678 32 DDR4 1024 0 Mac 64 0 Casual  
## 679 16 DDR4 1024 0 Mac 64 0 Casual  
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## 682 4 DDR4 0 512 DOS 32 4 Casual  
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## 684 4 DDR3 0 512 Windows 64 0 Casual  
## 685 4 DDR4 128 0 Windows 32 0 Casual  
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## 690 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 691 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 692 4 DDR4 256 0 Windows 64 0 Casual  
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## 694 4 DDR4 0 1024 Windows 64 0 Casual  
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## 696 4 DDR4 0 1024 Windows 64 0 Casual  
## 697 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 698 4 DDR4 256 0 Windows 64 0 ThinNlight  
## 699 4 DDR4 0 512 DOS 32 4 Casual  
## 700 8 DDR4 256 0 Windows 64 0 ThinNlight  
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## display\_size warranty Touchscreen msoffice latest\_price star\_rating ratings  
## 1 15.60 0 No No 24990 3.7 63  
## 2 15.60 0 No No 19590 3.6 1894  
## 3 15.60 0 No No 19990 3.7 1153  
## 4 15.60 0 No No 21490 3.7 1153  
## 5 15.60 0 No No 24990 3.7 1657  
## 6 14.00 0 No No 24990 3.7 1657  
## 7 14.00 0 No No 20900 3.9 1185  
## 8 15.60 0 No No 21896 3.9 219  
## 9 14.00 0 No No 26899 0.0 0  
## 10 15.60 1 No No 31990 4.2 76  
## 11 15.60 0 No No 34649 2.3 3  
## 12 15.60 0 No No 38999 3.8 65  
## 13 15.60 0 No No 39999 3.1 8  
## 14 15.60 0 No No 69990 0.0 0  
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## 19 14.00 0 No No 49999 0.0 0  
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## 34 15.60 0 No No 32955 4.2 311  
## 35 15.60 0 No No 46200 4.2 47  
## 36 14.00 0 No No 34429 4.1 37  
## 37 15.60 2 No Yes 37990 4.3 2080  
## 38 15.60 1 No Yes 35990 4.3 1479  
## 39 14.00 0 No No 33980 4.4 67  
## 40 14.00 1 No Yes 39990 4.2 273  
## 41 14.00 1 No Yes 39490 4.3 1267  
## 42 15.60 1 No No 38990 4.3 1063  
## 43 14.00 1 Yes Yes 53990 4.6 14  
## 44 15.60 1 No No 38990 0.0 0  
## 45 14.00 1 No Yes 46990 4.4 6352  
## 46 15.60 1 No No 37990 4.3 284  
## 47 14.00 1 No Yes 37890 4.6 44  
## 48 14.00 1 No No 38990 4.2 33  
## 49 14.00 0 No No 37990 4.2 286  
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## 138 15.60 1 No Yes 42990 4.4 1869  
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## 246 14.00 2 No Yes 52990 4.2 300  
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## 264 17.30 0 No No 72990 4.5 74  
## 265 15.60 2 No No 76990 4.6 75  
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## 267 15.60 2 No No 59990 4.5 1597  
## 268 15.60 1 No Yes 65990 4.4 3850  
## 269 14.00 0 Yes No 71990 4.7 7  
## 270 14.00 0 Yes No 71890 4.3 3  
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## 273 15.60 0 No No 55999 4.8 5  
## 274 14.00 1 No No 73490 4.5 213  
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## 276 14.00 1 No Yes 58340 4.0 69  
## 277 14.00 1 No No 55999 4.5 6  
## 278 14.00 0 No No 67990 4.4 93  
## 279 14.00 1 No No 59990 4.5 11  
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## 281 14.00 1 No Yes 64190 0.0 0  
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## 283 14.00 1 No Yes 60999 4.4 3470  
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## 285 14.00 0 No No 55490 3.9 8  
## 286 13.30 0 Yes No 97990 5.0 3  
## 287 15.60 1 No Yes 54990 4.4 1681  
## 288 15.00 1 No Yes 59990 4.3 37  
## 289 15.60 1 No Yes 53990 4.2 61  
## 290 14.00 1 No Yes 66999 4.4 17  
## 291 14.00 1 No Yes 60990 4.4 17  
## 292 15.60 1 No Yes 47990 4.3 1625  
## 293 14.00 1 No Yes 59999 4.0 4  
## 294 15.60 1 No No 79990 0.0 0  
## 295 15.60 1 No No 63990 0.0 0  
## 296 15.60 1 No Yes 63990 4.7 17  
## 297 14.00 1 No No 59990 0.0 0  
## 298 14.00 1 No No 55990 0.0 0  
## 299 14.00 1 No No 59990 0.0 0  
## 300 15.60 1 No Yes 63990 4.7 3  
## 301 14.00 1 No Yes 69490 0.0 0  
## 302 14.00 1 Yes Yes 89390 0.0 0  
## 303 13.30 0 No No 74990 0.0 0  
## 304 14.00 3 Yes Yes 64990 4.0 48  
## 305 15.60 1 No Yes 66490 4.4 282  
## 306 15.60 1 No Yes 89702 0.0 0  
## 307 15.60 1 No Yes 70990 4.2 67  
## 308 14.00 0 No No 42490 4.1 383  
## 309 17.30 1 Yes Yes 58990 0.0 0  
## 310 15.60 1 No Yes 57500 0.0 0  
## 311 14.00 1 Yes Yes 79990 4.6 23  
## 312 14.00 0 No No 56541 4.4 677  
## 313 17.30 0 No No 59990 3.3 3  
## 314 13.00 1 No Yes 64990 4.4 46  
## 315 14.00 1 No No 61290 3.0 4  
## 316 14.00 1 No Yes 54990 4.2 9  
## 317 15.60 1 No Yes 59990 4.4 26  
## 318 16.00 1 No No 84990 5.0 5  
## 319 16.00 1 No Yes 72500 4.4 40  
## 320 15.60 0 No No 59990 3.9 44  
## 321 16.00 1 Yes Yes 87990 4.7 28  
## 322 15.60 0 No No 57990 4.3 1541  
## 323 16.00 1 No Yes 69490 4.2 72  
## 324 16.00 3 Yes Yes 68990 4.6 44  
## 325 16.00 1 No Yes 77990 4.3 17  
## 326 16.00 1 Yes No 105990 4.4 59  
## 327 16.00 1 No No 79990 0.0 0  
## 328 15.60 1 No Yes 55490 4.1 337  
## 329 16.00 1 No Yes 69990 4.6 10  
## 330 15.60 1 Yes Yes 84990 4.2 10  
## 331 15.60 0 No No 59990 3.8 31  
## 332 15.60 1 No Yes 111890 0.0 0  
## 333 15.60 1 No No 65990 4.3 10  
## 334 15.60 1 No Yes 72990 4.7 76  
## 335 16.00 1 No Yes 71090 4.1 44  
## 336 15.60 2 No No 74990 0.0 0  
## 337 15.60 1 No Yes 79990 4.4 11  
## 338 15.60 1 No No 55490 4.3 138  
## 339 15.60 1 No Yes 66490 4.1 199  
## 340 15.60 1 No Yes 53400 4.1 46  
## 341 15.60 1 Yes Yes 74500 4.4 45  
## 342 16.00 1 No Yes 114990 0.0 0  
## 343 15.60 0 No No 61990 4.1 35  
## 344 16.00 1 No No 159990 4.4 32  
## 345 15.60 1 No No 172090 4.2 108  
## 346 15.60 0 No No 74990 0.0 0  
## 347 15.60 1 No No 56490 4.5 814  
## 348 16.00 3 No No 147000 0.0 0  
## 349 15.60 1 No Yes 55990 4.2 75  
## 350 15.60 1 No Yes 77990 0.0 0  
## 351 16.00 1 No Yes 106490 4.7 3  
## 352 16.00 1 No Yes 70990 4.6 11  
## 353 15.60 1 No Yes 64990 4.4 125  
## 354 15.60 1 No No 57990 0.0 0  
## 355 15.60 1 No No 64990 4.5 4  
## 356 15.60 1 No No 54990 4.4 714  
## 357 15.60 2 No Yes 62890 4.0 85  
## 358 16.00 0 Yes No 111999 0.0 0  
## 359 15.60 1 No Yes 70798 4.0 21  
## 360 15.60 0 No No 59990 3.8 9  
## 361 15.60 1 No No 99500 0.0 0  
## 362 15.60 1 No Yes 55990 4.2 30  
## 363 15.60 1 No No 72990 4.2 44  
## 364 15.60 1 No No 64990 3.8 4  
## 365 15.60 0 No No 57990 0.0 0  
## 366 16.00 1 Yes Yes 76990 4.4 14  
## 367 15.60 2 No Yes 62998 4.3 739  
## 368 16.00 1 Yes Yes 77990 4.5 31  
## 369 15.60 1 Yes Yes 114990 4.4 145  
## 370 15.60 1 No Yes 65990 0.0 0  
## 371 16.00 1 No Yes 88990 3.8 19  
## 372 15.60 0 No No 113590 0.0 0  
## 373 15.60 1 No No 54990 4.3 545  
## 374 15.60 1 Yes Yes 73990 4.2 32  
## 375 15.60 0 No No 86990 0.0 0  
## 376 15.60 1 No Yes 61000 4.3 1124  
## 377 15.60 1 Yes No 99990 4.9 35  
## 378 15.60 1 No Yes 67990 4.8 9  
## 379 15.60 1 Yes Yes 70799 4.7 98  
## 380 15.60 1 No Yes 65990 4.1 31  
## 381 15.60 1 No No 53690 4.4 19  
## 382 15.60 1 No No 55990 0.0 0  
## 383 15.60 1 No Yes 53190 4.5 11  
## 384 15.60 2 No Yes 58999 4.4 45  
## 385 15.60 3 No No 71990 0.0 0  
## 386 15.60 0 No No 82000 0.0 0  
## 387 16.00 0 No No 84990 0.0 0  
## 388 15.60 0 No No 89998 0.0 0  
## 389 15.60 1 Yes No 99990 0.0 0  
## 390 15.60 0 No No 84990 0.0 0  
## 391 15.60 0 No No 69899 4.3 474  
## 392 15.60 1 No No 79990 0.0 0  
## 393 15.60 1 No No 76300 4.2 6  
## 394 15.60 1 No Yes 55999 0.0 0  
## 395 15.60 0 No No 72900 3.9 24  
## 396 15.60 1 Yes Yes 73990 4.5 195  
## 397 16.00 0 No No 84990 0.0 0  
## 398 16.00 0 No No 73519 0.0 0  
## 399 15.60 1 Yes No 126000 5.0 2  
## 400 15.60 0 No No 171998 0.0 0  
## 401 16.00 1 No No 88990 0.0 0  
## 402 16.00 1 Yes Yes 114999 0.0 0  
## 403 16.00 1 Yes Yes 82990 4.5 21  
## 404 15.60 0 Yes No 109999 0.0 0  
## 405 16.00 1 Yes Yes 82990 0.0 0  
## 406 15.60 1 Yes Yes 79990 4.8 5  
## 407 16.00 1 Yes No 114990 0.0 0  
## 408 16.00 1 Yes No 129999 0.0 0  
## 409 15.60 0 No No 149990 4.1 10  
## 410 16.00 0 No No 71290 0.0 0  
## 411 15.60 1 No Yes 79500 4.3 10  
## 412 15.60 1 No Yes 82990 3.7 15  
## 413 15.60 1 No Yes 70980 4.4 138  
## 414 15.60 1 Yes No 99990 0.0 0  
## 415 15.60 0 No No 94000 0.0 0  
## 416 16.00 0 Yes No 82990 4.4 16  
## 417 16.00 1 No No 79990 4.9 11  
## 418 15.60 0 No No 85990 0.0 0  
## 419 15.60 0 No No 86990 0.0 0  
## 420 15.60 1 No Yes 105990 5.0 4  
## 421 15.60 0 No No 84990 0.0 0  
## 422 15.60 1 No Yes 59999 4.4 22  
## 423 16.00 1 No Yes 91999 4.6 16  
## 424 16.00 1 Yes Yes 78900 3.6 16  
## 425 15.60 0 No No 132790 0.0 0  
## 426 14.00 0 No No 55990 4.1 117  
## 427 15.60 0 No No 60990 3.9 14  
## 428 13.30 0 No No 65556 0.0 0  
## 429 15.60 0 No No 70190 3.5 6  
## 430 14.00 1 Yes No 79590 0.0 0  
## 431 13.30 0 No No 65556 0.0 0  
## 432 15.60 1 No No 76990 0.0 0  
## 433 14.00 0 No No 52790 4.0 5  
## 434 13.30 0 No No 65556 0.0 0  
## 435 14.00 0 No No 44990 3.4 17  
## 436 13.30 1 Yes Yes 84990 3.9 17  
## 437 14.00 1 Yes Yes 86999 4.7 3  
## 438 15.60 1 No No 78000 4.4 512  
## 439 14.00 0 No No 73063 3.4 17  
## 440 14.00 0 No No 73063 3.4 17  
## 441 14.00 1 No Yes 100990 0.0 0  
## 442 13.30 1 No Yes 74990 3.3 3  
## 443 15.60 0 No No 75990 4.6 1365  
## 444 15.60 1 No Yes 84086 3.5 8  
## 445 15.60 0 No No 75990 4.5 368  
## 446 17.30 1 No Yes 77990 4.4 202  
## 447 15.60 1 No No 77990 4.5 187  
## 448 13.00 1 No No 179990 4.7 31  
## 449 13.00 1 No No 179990 4.8 91  
## 450 15.60 0 No No 82990 4.5 844  
## 451 16.00 1 No No 87990 0.0 0  
## 452 15.60 0 No No 84500 4.3 3  
## 453 13.30 0 No No 74190 4.5 21  
## 454 13.30 1 No Yes 64990 3.0 4  
## 455 16.00 3 Yes No 155411 0.0 0  
## 456 15.60 3 Yes No 125394 0.0 0  
## 457 15.60 0 No No 49990 0.0 0  
## 458 14.00 1 No No 46990 3.8 253  
## 459 14.00 1 No Yes 48990 3.6 470  
## 460 15.60 1 No Yes 59999 4.1 118  
## 461 15.60 1 No No 46990 4.0 1444  
## 462 15.60 2 No No 52990 4.1 1114  
## 463 15.60 0 No No 57999 0.0 0  
## 464 15.60 0 No No 52490 3.8 78  
## 465 15.60 1 No No 56990 4.0 21  
## 466 15.60 1 No No 61990 4.1 73  
## 467 15.60 0 No No 58090 0.0 0  
## 468 15.60 0 No No 56990 0.0 0  
## 469 15.60 1 No No 61597 0.0 0  
## 470 15.60 0 No No 81990 0.0 0  
## 471 15.60 0 No No 61249 0.0 0  
## 472 15.60 0 No No 58990 0.0 0  
## 473 15.60 0 No No 83990 0.0 0  
## 474 15.60 0 No No 291190 4.6 7  
## 475 15.60 0 No No 145990 4.5 715  
## 476 15.60 0 No No 179990 4.4 24  
## 477 15.60 1 No Yes 64990 4.3 23  
## 478 15.60 1 No No 46790 4.2 3062  
## 479 15.60 1 No No 44599 4.1 122  
## 480 15.60 1 No No 72964 4.2 18  
## 481 15.60 1 No Yes 48790 3.4 11  
## 482 15.60 1 No No 56491 3.2 30  
## 483 15.60 1 No Yes 50990 4.3 1188  
## 484 15.60 0 No No 55990 4.5 23  
## 485 15.60 1 No No 57990 4.6 32  
## 486 15.60 1 No No 52990 0.0 0  
## 487 15.60 1 No No 57990 4.2 47  
## 488 15.60 1 No No 56990 4.0 27  
## 489 14.00 0 No No 55490 3.8 8  
## 490 15.60 1 No No 62490 3.9 157  
## 491 15.60 1 No No 64990 4.7 10  
## 492 15.60 1 No Yes 59990 4.3 52  
## 493 15.60 1 No Yes 60190 4.4 33  
## 494 15.60 0 No No 54490 4.3 343  
## 495 15.60 1 No Yes 60990 4.3 131  
## 496 14.90 1 No Yes 55790 4.2 41  
## 497 15.60 1 No Yes 64990 4.3 328  
## 498 17.30 0 No No 58990 4.8 6  
## 499 14.00 1 No Yes 54990 3.8 353  
## 500 15.60 1 No Yes 71990 4.3 127  
## 501 15.60 1 No No 69900 0.0 0  
## 502 15.60 1 No Yes 65990 4.2 241  
## 503 15.60 1 No No 49990 3.9 22  
## 504 15.60 1 No Yes 58990 4.0 8  
## 505 15.60 0 No No 74590 4.4 898  
## 506 15.60 0 No No 58990 5.0 1  
## 507 15.60 1 No No 64990 0.0 0  
## 508 15.60 0 No No 66490 3.8 6  
## 509 15.60 0 No No 77900 4.3 179  
## 510 15.60 0 No No 67490 3.8 41  
## 511 15.60 1 No Yes 61990 0.0 0  
## 512 15.60 1 No Yes 58990 4.3 114  
## 513 15.60 0 No No 74999 4.3 268  
## 514 15.60 1 No Yes 68900 5.0 6  
## 515 15.60 0 No No 71695 4.2 153  
## 516 14.00 0 No No 62490 3.4 8  
## 517 15.60 1 No Yes 62317 4.0 377  
## 518 15.60 0 No No 207290 0.0 0  
## 519 15.60 1 No Yes 87990 4.1 120  
## 520 14.00 0 No No 73990 0.0 0  
## 521 14.00 0 No No 73990 0.0 0  
## 522 14.00 0 No No 73990 0.0 0  
## 523 14.00 0 No No 73990 0.0 0  
## 524 14.00 0 No No 73990 0.0 0  
## 525 14.00 0 No No 73990 0.0 0  
## 526 15.60 1 No No 57990 4.3 76  
## 527 15.60 0 No No 61990 4.5 11  
## 528 15.60 2 No No 79990 4.5 484  
## 529 15.60 1 No Yes 68990 4.5 44  
## 530 14.00 1 No No 59490 4.2 399  
## 531 14.00 1 Yes Yes 85990 4.4 77  
## 532 15.60 1 No Yes 99990 4.4 11  
## 533 14.00 0 No No 54990 4.3 57  
## 534 14.00 1 No Yes 77990 4.3 21  
## 535 15.60 0 No No 79990 4.0 5  
## 536 15.60 1 No Yes 93190 5.0 4  
## 537 13.30 1 No Yes 94990 0.0 0  
## 538 14.00 3 Yes Yes 84990 4.5 13  
## 539 14.00 0 No No 57990 4.4 15  
## 540 13.30 1 Yes Yes 102990 4.7 11  
## 541 16.00 1 No No 99990 0.0 0  
## 542 16.00 0 No No 94990 4.5 118  
## 543 16.00 1 Yes Yes 104000 0.0 0  
## 544 15.60 0 No No 76990 0.0 0  
## 545 16.00 1 No Yes 90190 4.3 6  
## 546 16.00 0 Yes No 88488 0.0 0  
## 547 16.00 1 No No 109990 4.3 138  
## 548 15.60 0 No No 86990 0.0 0  
## 549 16.00 1 No No 89990 0.0 0  
## 550 16.00 1 Yes Yes 239759 0.0 0  
## 551 15.60 1 No Yes 78990 4.5 35  
## 552 16.00 1 No Yes 121890 1.7 3  
## 553 15.60 1 No No 85990 4.4 18  
## 554 16.00 2 No No 94990 0.0 0  
## 555 16.00 1 No Yes 92000 4.5 8  
## 556 16.00 1 Yes No 162990 3.3 3  
## 557 16.00 1 No Yes 135300 5.0 5  
## 558 15.60 0 No No 64990 4.4 33  
## 559 16.00 3 No No 174527 0.0 0  
## 560 15.60 0 No No 162299 0.0 0  
## 561 15.60 1 Yes Yes 109190 0.0 0  
## 562 16.00 1 Yes Yes 99999 0.0 0  
## 563 16.00 1 No No 104990 4.0 85  
## 564 16.00 0 Yes No 109990 0.0 0  
## 565 16.00 1 No No 99990 4.3 30  
## 566 16.00 0 No No 244801 0.0 0  
## 567 16.00 0 No No 94990 0.0 0  
## 568 15.60 1 No Yes 86000 0.0 0  
## 569 16.00 0 No No 162399 0.0 0  
## 570 15.60 0 No No 119599 0.0 0  
## 571 16.00 0 No No 211753 0.0 0  
## 572 14.00 0 No No 110999 0.0 0  
## 573 15.60 1 No No 99990 0.0 0  
## 574 13.30 1 No No 81990 4.3 40  
## 575 15.60 2 No No 66990 4.5 1639  
## 576 15.60 2 No No 84990 4.4 498  
## 577 14.00 1 Yes Yes 104990 0.0 0  
## 578 14.00 1 Yes No 134990 0.0 0  
## 579 15.60 0 No No 98990 4.5 445  
## 580 15.60 1 No Yes 144690 4.2 17  
## 581 13.30 0 No No 99990 0.0 0  
## 582 16.00 2 No No 119990 4.3 20  
## 583 16.00 1 No No 194990 0.0 0  
## 584 16.00 1 No Yes 124990 4.6 17  
## 585 16.00 0 No No 122410 0.0 0  
## 586 16.00 1 Yes No 179990 4.2 13  
## 587 16.00 2 Yes No 154990 4.0 3  
## 588 16.00 1 No Yes 122990 3.0 4  
## 589 15.60 1 Yes No 224990 4.7 9  
## 590 15.60 0 No No 279990 0.0 0  
## 591 16.00 0 No No 121990 0.0 0  
## 592 16.00 0 No No 116990 0.0 0  
## 593 16.00 0 No No 151098 4.4 7  
## 594 16.00 2 No No 129990 4.2 14  
## 595 16.00 1 Yes No 149999 0.0 0  
## 596 16.00 0 No No 139990 4.5 4  
## 597 16.00 1 No No 129990 4.5 54  
## 598 16.00 1 No Yes 171990 0.0 0  
## 599 16.00 1 No Yes 93955 4.8 4  
## 600 15.60 0 No No 234990 0.0 0  
## 601 16.00 1 Yes Yes 128500 3.7 3  
## 602 16.00 1 Yes Yes 102990 4.4 16  
## 603 16.00 1 Yes No 119990 4.8 8  
## 604 16.00 0 No No 120980 0.0 0  
## 605 16.00 1 No No 157249 4.3 7  
## 606 16.00 0 No No 229900 0.0 0  
## 607 16.00 1 No No 131500 0.0 0  
## 608 16.00 0 No No 154990 5.0 3  
## 609 16.00 0 No No 165990 0.0 0  
## 610 16.00 0 No No 119990 2.5 2  
## 611 16.00 0 No No 167990 0.0 0  
## 612 16.00 1 Yes No 165000 0.0 0  
## 613 14.00 0 No No 62990 3.9 207  
## 614 13.00 1 No Yes 85990 3.4 7  
## 615 13.30 1 No Yes 94990 0.0 0  
## 616 16.10 1 No Yes 136990 0.0 0  
## 617 15.60 1 No Yes 234990 0.0 0  
## 618 16.00 1 No No 159990 3.8 4  
## 619 16.00 0 No No 233990 0.0 0  
## 620 15.60 0 No No 93990 0.0 0  
## 621 15.60 1 No No 116941 0.0 0  
## 622 15.60 2 No No 63990 4.3 794  
## 623 15.60 0 No No 66990 4.2 25  
## 624 15.60 0 No No 82500 0.0 0  
## 625 16.00 1 No No 119990 4.6 2038  
## 626 16.00 3 No No 159990 0.0 0  
## 627 15.60 0 No No 98912 0.0 0  
## 628 15.60 1 No No 92990 4.5 214  
## 629 15.60 1 No No 119990 4.5 342  
## 630 15.60 1 No No 169990 0.0 0  
## 631 15.60 1 No No 139990 0.0 0  
## 632 16.00 0 No No 192990 0.0 0  
## 633 15.60 0 No No 299990 0.0 0  
## 634 15.60 1 Yes No 269990 4.8 8  
## 635 15.60 1 No No 139990 0.0 0  
## 636 15.60 0 No No 265998 0.0 0  
## 637 15.60 1 No No 441990 5.0 1  
## 638 12.20 0 Yes No 42990 3.5 25  
## 639 15.60 0 No No 86990 4.5 218  
## 640 15.60 1 No No 29990 0.0 0  
## 641 15.60 1 No No 31990 4.0 762  
## 642 15.60 0 No No 109990 4.6 78  
## 643 15.60 0 No No 109590 4.6 5  
## 644 15.60 0 No No 146490 3.0 2  
## 645 15.60 0 No No 61745 4.6 23  
## 646 15.60 0 No No 209690 5.0 4  
## 647 15.60 0 No No 175190 4.8 6  
## 648 15.60 0 No No 199990 4.9 12  
## 649 15.60 0 No No 75500 4.4 28  
## 650 15.60 0 No No 345390 4.6 10  
## 651 15.60 0 No No 214790 4.1 13  
## 652 15.60 0 No No 269290 4.0 5  
## 653 15.60 0 No No 95990 4.3 20  
## 654 15.60 2 No No 76990 4.5 298  
## 655 15.60 2 No No 55990 4.4 2582  
## 656 13.30 1 No No 85990 4.7 6725  
## 657 13.30 1 No No 112990 4.8 640  
## 658 13.30 1 No No 104990 4.7 45  
## 659 13.30 1 No No 112990 4.8 640  
## 660 13.30 1 No No 132990 4.8 640  
## 661 13.30 1 No No 104990 4.7 45  
## 662 13.30 1 No No 85990 4.7 6725  
## 663 13.30 1 No No 149990 4.8 640  
## 664 13.30 1 No No 125990 4.6 399  
## 665 13.30 1 No No 103990 4.7 809  
## 666 13.30 1 No No 101990 4.7 809  
## 667 13.30 1 No No 104990 4.7 6725  
## 668 13.30 1 No No 131990 4.6 399  
## 669 13.30 1 No No 128990 4.7 45  
## 670 14.20 1 No No 184990 4.8 42  
## 671 16.20 1 No No 225990 4.8 42  
## 672 16.00 1 No No 124990 4.7 45  
## 673 13.30 1 No No 104990 4.7 6725  
## 674 13.30 1 No No 149990 4.8 640  
## 675 13.30 1 No No 169990 4.8 640  
## 676 14.20 1 No No 225990 4.8 42  
## 677 16.20 1 No No 243990 4.8 42  
## 678 16.20 1 No No 309990 5.0 3  
## 679 14.20 1 No No 225990 4.8 42  
## 680 15.60 0 No No 179990 4.5 17  
## 681 15.60 0 No No 116640 0.0 0  
## 682 15.60 0 No No 129999 4.5 3227  
## 683 15.60 0 No No 45990 0.0 0  
## 684 15.60 0 No No 13990 3.8 1218  
## 685 15.60 0 Yes No 58100 0.0 0  
## 686 13.30 1 Yes No 62990 0.0 0  
## 687 14.00 1 No Yes 32990 4.1 77  
## 688 15.60 1 No Yes 33990 4.3 6  
## 689 15.60 1 No No 30990 4.2 465  
## 690 15.60 1 No No 36000 4.3 102  
## 691 15.60 1 No Yes 32990 4.3 7  
## 692 15.60 1 No No 35990 0.0 0  
## 693 15.60 0 No No 27990 0.0 0  
## 694 15.60 1 No No 25990 3.7 4741  
## 695 15.60 1 No No 25990 3.8 2736  
## 696 15.60 0 No No 30780 0.0 0  
## 697 14.00 0 No No 29990 4.0 36  
## 698 15.60 0 No No 31990 3.8 5  
## 699 15.60 0 No No 77890 4.4 208  
## 700 15.60 1 No No 37990 4.3 2214  
## 701 15.60 1 No No 35990 4.3 2886  
## 702 15.60 0 No No 39490 4.3 34  
## 703 14.96 0 No No 36990 4.2 137  
## 704 15.60 1 No No 39990 4.6 7  
## 705 15.60 1 No No 33690 4.2 170  
## 706 15.60 0 No No 40590 0.0 0  
## 707 15.60 1 No No 37990 4.2 39  
## 708 15.60 1 No Yes 34500 4.3 2886  
## 709 15.60 1 No No 36990 4.6 11  
## 710 14.00 0 No No 43490 4.6 163  
## 711 15.60 1 No Yes 41490 4.2 153  
## 712 15.60 0 No No 34990 0.0 0  
## 713 15.60 1 No Yes 44490 4.3 267  
## 714 15.60 0 No No 40590 0.0 0  
## 715 15.60 0 No No 42090 3.3 3  
## 716 14.00 1 No Yes 35990 4.1 59  
## 717 15.60 1 No Yes 39490 4.2 7291  
## 718 15.60 0 No No 37390 4.2 38  
## 719 15.60 1 No Yes 52632 0.0 0  
## 720 15.60 1 No Yes 39990 4.1 409  
## 721 15.60 1 No No 43990 0.0 0  
## 722 15.60 1 No No 32917 4.0 353  
## 723 15.60 0 No No 34990 3.3 38  
## 724 14.96 0 No No 39990 3.1 18  
## 725 15.60 1 No Yes 41999 4.3 3524  
## 726 15.60 0 No No 22990 3.8 4623  
## 727 15.60 0 No No 22490 3.8 4623  
## 728 15.60 0 No No 22990 3.8 4623  
## 729 15.60 0 Yes No 99990 3.8 9  
## 730 14.00 1 No Yes 41990 4.3 939  
## 731 15.60 1 No No 44490 4.2 14  
## 732 15.60 1 No Yes 41990 4.4 649  
## 733 14.00 1 No Yes 44490 4.3 8  
## 734 15.60 1 No No 49990 0.0 0  
## 735 15.60 1 No No 44390 4.0 276  
## 736 15.60 1 No No 57990 4.5 4740  
## 737 15.60 1 No Yes 56990 4.5 162  
## 738 15.60 1 No No 48990 4.4 219  
## 739 14.00 1 No Yes 49970 4.5 193  
## 740 14.00 0 No No 47990 4.6 562  
## 741 15.60 1 No Yes 48990 4.4 45  
## 742 14.00 1 No No 53990 4.9 7  
## 743 15.60 1 No Yes 52990 4.2 39  
## 744 15.60 1 No No 43990 0.0 0  
## 745 15.60 0 No No 59490 4.5 92  
## 746 15.60 0 No No 64990 4.5 469  
## 747 14.00 0 No No 47490 2.5 2  
## 748 15.60 1 No No 59990 4.4 1978  
## 749 15.60 0 No No 69990 4.3 9  
## 750 15.60 1 No No 58990 4.5 1049  
## 751 14.00 1 No No 59490 4.6 74  
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## 880 0  
## 881 0  
## 882 1  
## 883 0  
## 884 12  
## 885 13  
## 886 0  
## 887 0  
## 888 0  
## 889 0  
## 890 0  
## 891 0  
## 892 0  
## 893 0  
## 894 0  
## 895 0  
## 896 4

DATA:

Data Source:- This data is available on Kaggle, below is the link to the dataset <https://www.kaggle.com/datasets/kuchhbhi/latest-laptop-price-list>

Data Collection:- The author scrapped the data from flipkart.com, they used an automated chrome web extension tool called Instant Data Scrapper to gather the data. It is a observational study.

Units of observation:- Each row represents a laptop along with its specifications, current price, reviews, and ratings.

No data cleanup required.

Exploratory Data Analysis:

summary(data)

## brand model processor\_brand processor\_name   
## Length:896 Length:896 Length:896 Length:896   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## processor\_gnrtn ram\_gb ram\_type ssd   
## Length:896 Min. : 4.000 Length:896 Min. : 0.0   
## Class :character 1st Qu.: 4.000 Class :character 1st Qu.: 256.0   
## Mode :character Median : 8.000 Mode :character Median : 512.0   
## Mean : 8.531 Mean : 432.3   
## 3rd Qu.: 8.000 3rd Qu.: 512.0   
## Max. :32.000 Max. :3072.0   
## hdd os os\_bit graphic\_card\_gb  
## Min. : 0.0 Length:896 Min. :32.00 Min. :0.000   
## 1st Qu.: 0.0 Class :character 1st Qu.:64.00 1st Qu.:0.000   
## Median : 0.0 Mode :character Median :64.00 Median :0.000   
## Mean : 226.9 Mean :59.18 Mean :1.199   
## 3rd Qu.: 512.0 3rd Qu.:64.00 3rd Qu.:2.000   
## Max. :2048.0 Max. :64.00 Max. :8.000   
## weight display\_size warranty Touchscreen   
## Length:896 Min. :12.2 Min. :0.000 Length:896   
## Class :character 1st Qu.:15.6 1st Qu.:0.000 Class :character   
## Mode :character Median :15.6 Median :1.000 Mode :character   
## Mean :15.3 Mean :0.692   
## 3rd Qu.:15.6 3rd Qu.:1.000   
## Max. :17.3 Max. :3.000   
## msoffice latest\_price star\_rating ratings   
## Length:896 Min. : 13990 Min. :0.00 Min. : 0.0   
## Class :character 1st Qu.: 45490 1st Qu.:0.00 1st Qu.: 0.0   
## Mode :character Median : 63494 Median :4.10 Median : 19.0   
## Mean : 76310 Mean :2.98 Mean : 367.4   
## 3rd Qu.: 89090 3rd Qu.:4.40 3rd Qu.: 179.5   
## Max. :441990 Max. :5.00 Max. :15279.0   
## reviews   
## Min. : 0.00   
## 1st Qu.: 0.00   
## Median : 3.00   
## Mean : 46.15   
## 3rd Qu.: 23.25   
## Max. :1947.00

nrow(data)

## [1] 896

ncol(data)

## [1] 21

numeric\_columns <- sapply(data, is.numeric)  
  
# Print the results  
print(numeric\_columns)

## brand model processor\_brand processor\_name processor\_gnrtn   
## FALSE FALSE FALSE FALSE FALSE   
## ram\_gb ram\_type ssd hdd os   
## TRUE FALSE TRUE TRUE FALSE   
## os\_bit graphic\_card\_gb weight display\_size warranty   
## TRUE TRUE FALSE TRUE TRUE   
## Touchscreen msoffice latest\_price star\_rating ratings   
## FALSE FALSE TRUE TRUE TRUE   
## reviews   
## TRUE

print(sum(numeric\_columns))

## [1] 11

print(sum(is.na(data)))

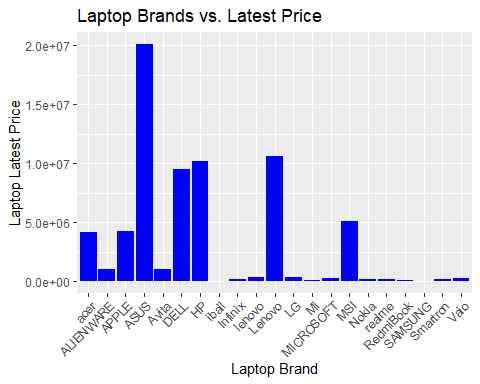
## [1] 0

print(sum(duplicated(data)))

## [1] 21

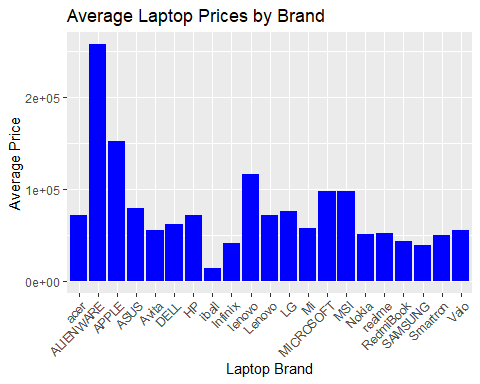
Above is the summary of the data. There are a total of 896 rows. There are a total of 26 columns. There are 11 numeric columns out of 26. There are no null values in the data. There are 21 duplicate rows in the data.

p <- ggplot(data, aes(x = `brand`, y = `latest\_price`)) +  
 geom\_bar(stat = "identity", fill = "blue") +  
 labs(x = "Laptop Brand", y = "Laptop Latest Price") +  
 ggtitle("Laptop Brands vs. Latest Price") +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1))  
  
# Display the plot  
print(p)



Above graph will show us brands with highest laptop price in rupees.

avg\_prices <- aggregate(latest\_price ~ brand, data = data, FUN = mean)  
colnames(avg\_prices) <- c("brand", "Average Price")  
  
p <- ggplot(avg\_prices, aes(x = `brand`, y = `Average Price`)) +  
 geom\_bar(stat = "identity", fill = "blue") +  
 labs(x = "Laptop Brand", y = "Average Price") +  
 ggtitle("Average Laptop Prices by Brand") +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1))  
  
# Display the plot  
print(p)



Above graph will show us brands with there average price in rupees.

Questions for next stage:

1. Is the average price of the products is equal to the reference value Rs. 73k?
2. Is the average star rating of the products is equal to the reference value 3.2?