

CPSC 304 Project Cover Page

Milestone #: **2**

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Group Number: **107**

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Project Summary

Our project is about modeling PC components to allow users to understand how different parts of a PC work together and what is required to create your own PC. Using this database, users will be able to look up the price of different PC parts and customize their own PC. The final build of the PC will indicate whether all the parts are compatible with each other as well as the final price of the PC.

ER Diagram Modifications

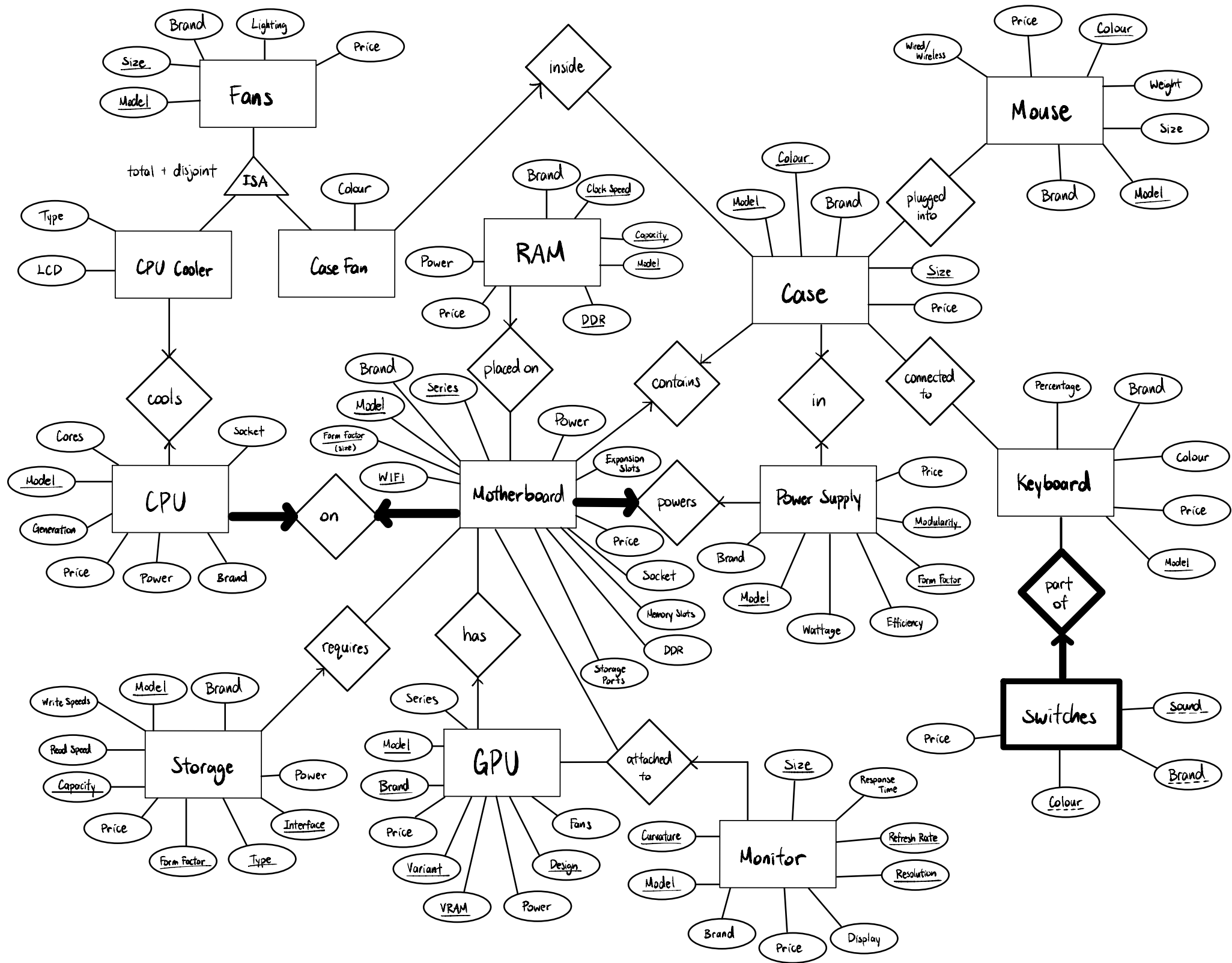
Based on feedback from milestone 1, we have made changes to these constraints in the ER diagram:

1. Relationship “plugged into” is now many-to-many as many mouse can be plugged into a single case and many cases can be connected to the same mouse
2. The relationship “connected to” is now many-to-many as many keyboards can be plugged into a single case and many cases can be connected to the same keyboard
3. The relationship “has” is now many-to-one as a motherboard can have multiple GPUs but a GPU can only be on one motherboard.

We have also deleted the ISA hierarchy of the entity set Storage since it does not provide any additional attributes so it is not valuable.

Many changes to the attributes and keys for entities from the feedback given in milestone 1 (Note brand determines model for all entities except for GPU):

1. CPU entity: model (Core i7-12700K, Ryzen 7 7800X3D, etc.) is now the key
2. Fans entity: model, size, lighting are now the key
 - a. CPU Cooler entity: key is the same as Fans entity key
 - b. Case fan entity: key is the same as Fans entity key
3. Storage entity: model, capacity, form factor, type, interface are now the key
4. GPU entity: model, brand, variant, VRAM, design are now the key
5. Motherboard entity: model, series, form factor (size), wifi are now the key
6. RAM entity: model, clock speed, capacity, DDR are now the key
7. Power supply entity: model (has wattage), form factor, modularity are the key
8. Case entity: model, colour, size are now the key
9. Monitor entity: model, curvature, size, refresh rate, resolution are now the key
10. Keyboard entity: model is now the key
 - a. Switches entity: sound, brand, colour are part of the key
11. Mouse entity: model, colour are now the key



Schema

- Primary Keys are underlined, foreign keys are **bolded**

CPUCooler_Cools(Model: VARCHAR, Size: INT, Lighting: VARCHAR, Brand: VARCHAR, Price: NUMBER, LCD: VARCHAR, Type: VARCHAR, **CPU_Model**: VARCHAR)

- Primary key: {Model, Size}
- Candidate keys: {Model, Size}, {CPU_Model}
- Unique: CPU_Model

CaseFan_Inside(Model: VARCHAR, Size: INT, Lighting: VARCHAR, Brand: VARCHAR, Price: NUMBER, Colour: VARCHAR, **Case_Model**: VARCHAR, **Case_Colour**: VARCHAR, **Case_Size**: VARCHAR)

- Primary key: {Model, Size}
- Candidate keys: {Model, Size}
- Foreign keys: {Case_Model, Case_Colour, Case_Size}

CPU_On(Model: VARCHAR, Cores: INT, Socket: VARCHAR, Generation: INT, Price: NUMBER, Power: INT, Brand: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model}
- Candidate keys: {Model}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Not null: MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- Unique: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Motherboard_Powers(Model: VARCHAR, Form_Factor: VARCHAR, Series: VARCHAR, WIFI: VARCHAR, Brand: VARCHAR, Power: INT, Expansion_Slots: VARCHAR, Price: NUMBER, Socket: VARCHAR, Memory_Slots: INT, DDR: VARCHAR, Storage_Ports: INT, **CPU_Model**: VARCHAR, **PSU_Modularity**: VARCHAR, **PSU_Form_Factor**: VARCHAR, **PSU_Model**: VARCHAR)

- Primary key: {Model, Form_Factor, Series, WIFI}
- Candidate keys: {Model, Form_Factor, Series, WIFI}, {CPU_Model}, {PSU_Modularity, PSU_Brand, PSU_Form_Factor, PSU_Model}
- Foreign keys: {CPU_Model}, {PSU_Modularity, PSU_Form_Factor, PSU_Model}
- Not null: CPU_Model, PSU_Modularity, PSU_Form_Factor, PSU_Model
- Unique: {CPU_Model}, {PSU_Modularity, PSU_Form_Factor, PSU_Model}

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Storage_Requires(Model: VARCHAR, Capacity: INT, Interface: VARCHAR, Type: VARCHAR, Form_Factor: VARCHAR, Brand: VARCHAR, Read_Speed: INT, Write_Speeds: INT, Power: INT, Price: NUMBER,

MB_Model: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Capacity, Interface, Type, Form_Factor}
- Candidate keys: {Model, Capacity, Interface, Type, Form_Factor}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

GPU_Has(Model: VARCHAR, Brand: VARCHAR, Variant: VARCHAR, VRAM: INT, Design: VARCHAR, Fans: INT, Power: INT, Series: VARCHAR, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR,

MB_Series: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Brand, Variant, VRAM, Design}
- Candidate keys: {Model, Brand, Variant, VRAM, Design}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Monitor_Attached_To(Model: VARCHAR, Curvature: VARCHAR, Resolution: VARCHAR, Refresh_Rate: INT, Size: NUMBER, Response_Time: NUMBER, Brand: VARCHAR, Price: NUMBER, Display: VARCHAR,

GPU_Model: VARCHAR, **GPU_Brand**: VARCHAR, **GPU_Variant**: VARCHAR, **GPU_VRAM**: INT,

GPU_Design: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Curvature, Resolution, Refresh_Rate, Size}
- Candidate keys: {Model, Curvature, Resolution, Refresh_Rate, Size}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}, {GPU_Model, GPU_Brand, GPU_Variant, GPU_VRAM, GPU_Design}

RAM_Placed_On(Model: VARCHAR, DDR: VARCHAR, Capacity: INT, Clock_Speed: INT, Power: INT, Price: NUMBER, Brand: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**:

VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, DDR, Capacity, Clock_Speed}
- Candidate keys: {Model, DDR, Capacity, Clock_Speed}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

PowerSupply_In(Model: VARCHAR, Brand: VARCHAR, Efficiency: VARCHAR, Form_Factor: VARCHAR, Modularity: VARCHAR, Wattage: INT, Price: NUMBER, **Case_Model**: VARCHAR, **Case_Colour**: VARCHAR,

Case_Size: VARCHAR)

- Primary key: {Model, Form_Factor, Modularity}
- Candidate keys: {Model, Form_Factor, Modularity}, {Case_Model, Case_Colour, Case_Size}
- Foreign keys: {Case_Model, Case_Colour, Case_Size}

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- Unique: {Case_Model, Case_Colour, Case_Size}

Case_Contains(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Size: VARCHAR, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Colour, Size}
- Candidate keys: {Model, Colour, Size}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Unique: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Mouse(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Size: VARCHAR, Weight: INT, Price: NUMBER, Wired_Wireless: VARCHAR)

- Primary key: {Model, Colour}
- Candidate keys: {Model, Colour}

Plugged_Into(**Case_Model**: VARCHAR, **Case_Colour**: VARCHAR, **Case_Size**: VARCHAR, **Mouse_Model**: VARCHAR, **Mouse_Colour**: VARCHAR)

- Primary Key: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
- Candidate Key: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
- Foreign Key: {Case_Model, Case_Colour, Case_Size}, {Mouse_Model, Mouse_Colour}

Keyboard(Model: VARCHAR, Percentage: NUMBER, Brand: VARCHAR, Colour: VARCHAR, Price: NUMBER)

- Primary Key: {Model}
- Candidate Keys: {Model}

Switches(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Sound: VARCHAR, Price: NUMBER)

- Primary Key: {Model, Brand, Colour, Sound}
- Candidate Keys: {Model, Brand, Colour, Sound}

Connected_To(**Case_Model**: VARCHAR, **Case_Colour**: VARCHAR, **Case_Size**: VARCHAR, **Keyboard_Model**: VARCHAR)

- Primary Key: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- Candidate Key: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- Foreign Key: {Case_Model, Case_Colour, Case_Size}, {Keyboard_Model}

Functional Dependencies & Decomposition:

Below are all the functional dependencies list for the table and the steps to decompose it into BCNF.

CPUCooler_Cools(Model, Size, Lighting, Brand, Price, LCD, Type, **CPU_Model**)

- Model, Size \rightarrow Brand, Price, LCD, Type, CPU_Model
- CPU_Model \rightarrow Model, Size, Lighting, Brand, Price, LCD, Type
- Model \rightarrow Lighting, Brand, Type, LCD
- Size, Lighting, Brand, Type \rightarrow Price

CaseFan_Inside(Model, Size, Lighting, Brand, Price, Colour, **Case_Model**, **Case_Colour**, **Case_Size**)

- Model, Size \rightarrow Brand, Price, Colour, Case_Model, Case_Colour, Case_Size
- Model \rightarrow Brand, Lighting
- Model, Colour, Size \rightarrow Price

CPU_On(Model, Cores, Socket, Generation, Price, Power, Brand, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**)

- Model \rightarrow Cores, Socket, Generation, Price, Power, Brand, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- MB_Model, MB_Form_Factor, MB_Series, MB_WIFI \rightarrow Cores, Socket, Generation, Price, Power, Brand, Model
- Cores, Generation \rightarrow Power

Motherboard_Powers(Model, Form_Factor, Series, WIFI, Brand, Power, Expansion_Slots, Price, Socket, Memory_Slots, DDR, Storage_Ports, **CPU_Model**, **PSU_Modularity**, **PSU_Form_Factor**, **PSU_Model**)

- Model, Form_Factor, Series, WIFI \rightarrow Brand, Power, Expansion_Slots, Price, Socket, Memory_Slots, DDR, Storage_Ports, CPU_Model, PSU_Modularity, PSU_Form_Factor, PSU_Model
- CPU_Model \rightarrow Model, Form_Factor, Series, WIFI, Brand, Power, Expansion_Slots, Price, Socket, Memory_Slots, DDR, Storage_Ports, PSU_Modularity, PSU_Form_Factor, PSU_Model
- PSU_Modularity, PSU_Form_Factor, PSU_Model \rightarrow Model, Form_Factor, Series, WIFI, Brand, Power, Expansion_Slots, Price, Socket, Memory_Slots, DDR, Storage_Ports, CPU_Model
- CPU_Model \rightarrow Socket

Storage_Requires(Model, Capacity, Interface, Type, Form_Factor, Brand, Read_Speeds, Write_Speeds, Power, Price, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**)

- Model, Capacity, Interface, Type, Form_Factor → Brand, Read_Speeds, Write_Speeds, Power, Price, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- Model, Capacity, Type → Price
- Model → Read_Speeds, Write_Speeds, Brand

GPU_Has(Model, Brand, Variant, VRAM, Design, Fans, Power, Series, Price, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**)

- Model, Brand, Variant, VRAM, Design → Fans, Power, Series, Price, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- Model → Series, Fans
- Model, Brand, Variant, Fans, Design, VRAM, Series → Price
- Model, VRAM, Fans → Power

Monitor_Attached_To(Model, Curvature, Resolution, Refresh_Rate, Size, Response_Time, Brand, Price, Display, **GPU_Model**, **GPU_Brand**, **GPU_Variant**, **GPU_VRAM**, **GPU_Design**, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**)

- Model, Curvature, Resolution, Refresh_Rate, Size → Response_Time, Brand, Price, Display, GPU_Model, GPU_Brand, GPU_Variant, GPU_VRAM, GPU_Design, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- Model → Brand, Display

RAM_Placed_On(Model, DDR, Capacity, Clock_Speed, Power, Price, Brand, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**):

- Model, DDR, Capacity, Clock_Speed → Power, Price, Brand, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- Model → Brand
- DDR, Capacity → Power

PowerSupply_In(Model, Brand, Efficiency, Form_Factor, Modularity, Wattage, Price, **Case_Model**, **Case_Brand**, **Case_Colour**, **Case_Size**):

- Model, Form_Factor, Modularity → Brand, Wattage, Price, Case_Model, Case_Brand, Case_Colour, Case_Size
- Case_Model, Case_Colour, Case_Size → Model, Efficiency, Form_Factor, Modularity, Brand, Wattage, Price
- Model → Brand, Wattage, Efficiency

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Case_Contains(Model, Brand, Colour, Size, Price, **MB_Model**, **MB_Form_Factor**, **MB_Series**, **MB_WIFI**):

- Model, Colour, Size → Brand, Price, MB_Model, MB_Form_Factor, MB_Series, MB_WIFI
- MB_Model, MB_Form_Factor, MB_Series, MB_WIFI → Model, Brand, Colour, Size, Price
- Model → Brand

Mouse(Model, Brand, Colour, Size, Weight, Price, Wired_Wireless):

- Model, Colour → Brand, Size, Weight, Price, Wired_Wireless
- Model → Brand

Plugged_Into(**Case_Model**, **Case_Colour**, **Case_Size**, **Mouse_Name**, **Mouse_Colour**):

- Case_Model, Case_Colour, Case_Size, Mouse_Name, Mouse_Colour → Case_Model, Case_Colour, Case_Size, Mouse_Name, Mouse_Colour

Keyboard(Model, Percentage, Brand, Colour, Price):

- Model → Brand, Colour, Price, Percentage

Switches(**Model**, Brand, Colour, Sound, Price):

- Model, Brand, Colour → Price

Connected_To(**Case_Model**, **Case_Colour**, **Case_Size**, **Keyboard_Model**) :

- Case_Model, Case_Colour, Case_Size, Keyboard_Model → Case_Model, Case_Colour, Case_Size, Keyboard_Model

Decomposition

- Tables in **Red** are in BCNF

CPUCooler_Cools(Model: VARCHAR, Size: INT, Lighting: VARCHAR, Brand: VARCHAR, Price: NUMBER, LCD: VARCHAR, Type: VARCHAR, **CPU_Model**: VARCHAR)

- Primary key: {Model, Size}
- Candidate keys: {Model, Size}, {CPU_Model}
- Model → Lighting, Brand, Type, LCD
- Size, Lighting, Brand, Type → Price

Decomposing on Model → Lighting, Brand, Type, LCD gives us

R₁(Model: VARCHAR, Size: INT, Price: NUMBER, **CPU_Model: VARCHAR)**

- PK: {Model, Size}
- CK: {Model, Size}, {CPU_Model}
- FK: {CPU_Model}

R₂(Model: VARCHAR, Lighting: VARCHAR, Brand: VARCHAR, Type: VARCHAR, LCD: VARCHAR)

- PK: {Model}
- CK: {Model}

CaseFan_Inside(Model: VARCHAR, Size: INT, Lighting: VARCHAR, Brand: VARCHAR, Price: NUMBER, Colour: VARCHAR, **Case_Model**: VARCHAR, **Case_Colour**: VARCHAR, Case_Brand: VARCHAR, **Case_Size**: VARCHAR)

- Primary key: {Model, Size}
- Candidate keys: {Model, Size}
- Foreign keys: {Case_Model, Case_Colour, Case_Size}
- Model → Brand, Lighting
- Model, Colour, Size → Price This is a super key so in BCNF

Decomposing on Model → Brand, Lighting gives us

R₁(Model: VARCHAR, Size: INT, Price: NUMBER, Colour: VARCHAR, **Case_Model: VARCHAR, **Case_Colour**: VARCHAR, **Case_Size**: VARCHAR)**

- PK: {Model, Size}
- CK: {Model, Size}, {Case_Model, Case_Colour, Case_Size}
- FK: {Case_Model, Case_Colour, Case_Size}

$R_2(\underline{\text{Model}}: \text{VARCHAR}, \text{Brand}: \text{VARCHAR}, \text{Lighting}: \text{VARCHAR})$

- PK: {Model}
 - CK: {Model}
-

CPU_On(Model: VARCHAR, Cores: INT, Socket: VARCHAR, Generation: INT, Price: NUMBER, Power: INT, Brand: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model}
- Candidate keys: {Model}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Cores, Generation \rightarrow Power

Decomposing on Cores, Generation \rightarrow Power gives us

$R_1(\underline{\text{Cores}}: \text{VARCHAR}, \underline{\text{Generation}}: \text{INT}, \text{Power}: \text{INT})$

- PK: {Cores, Generation}
- CK: {Cores, Generation}

$R_2(\text{Cores}: \text{VARCHAR}, \text{Generation}: \text{INT}, \underline{\text{Model}}: \text{VARCHAR}, \text{Socket}: \text{VARCHAR}, \text{Price}: \text{Number}, \text{Brand}: \text{VARCHAR}, \text{MB_Model}: \text{VARCHAR}, \text{MB_Form_Factor}: \text{VARCHAR}, \text{MB_Series}: \text{VARCHAR}, \text{MB_WiFi}: \text{VARCHAR})$

- PK: {Model}
 - CK: {Model}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
 - FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
-

Motherboard_Powers(Model: VARCHAR, Form_Factor: VARCHAR, Series: VARCHAR, WiFi: VARCHAR, Brand: VARCHAR, Power: INT, Expansion_Slots: VARCHAR, Price: NUMBER, Socket: VARCHAR, Memory_Slots: INT, DDR: VARCHAR, Storage_Ports: INT, **CPU_Model**: VARCHAR, **PSU_Modularity**: VARCHAR, **PSU_Form_Factor**: VARCHAR, **PSU_Model**: VARCHAR)

- Primary key: {Model, Form_Factor, Series, WiFi}
- Candidate keys: {Model, Form_Factor, Series, WiFi}, {CPU_Model}, {PSU_Modularity, PSU_Brand, PSU_Form_Factor, PSU_Model}
- Foreign keys: {CPU_Model}, {PSU_Modularity, PSU_Form_Factor, PSU_Model}
- CPU_Model \rightarrow Socket

Decomposing on CPU_Model → Socket gives us

$R_1(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{Form_Factor}}: \text{VARCHAR}, \underline{\text{Series}}: \text{VARCHAR}, \underline{\text{WIFI}}: \text{VARCHAR}, \text{Brand}: \text{VARCHAR}, \text{Power}: \text{INT}, \text{Expansion_Slots}: \text{VARCHAR}, \text{Price}: \text{NUMBER}, \text{Memory_Slots}: \text{INT}, \text{DDR}: \text{VARCHAR}, \text{Storage_Ports}: \text{INT}, \text{CPU_Model}: \text{VARCHAR}, \text{PSU_Modularity}: \text{VARCHAR}, \text{PSU_Form_Factor}: \text{VARCHAR}, \text{PSU_Model}: \text{VARCHAR})$

- PK {Model, Form_Factor, Series, WIFI}
- CK: {Model, Form_Factor, Series, WIFI}, {CPU_Model}, {PSU_Modularity, PSU_Form_Factor, PSU_Model}
- FK: {CPU_Model}, {PSU_Modularity, PSU_Form_Factor, PSU_Model}

$R_2(\underline{\text{CPU_Model}}: \text{VARCHAR}, \text{Socket}: \text{VARCHAR})$

- PK: {CPU_Model}
 - CK: {CPU_Model}
-

Storage_Requires(Model: VARCHAR, Capacity: INT, Interface: VARCHAR, Type: VARCHAR, Form_Factor: VARCHAR, Brand: VARCHAR, Read_Speeds: INT, Write_Speeds: INT, Power: INT, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Capacity, Interface, Type, Form_Factor}
- Candidate keys: {Model, Capacity, Interface, Type, Form_Factor}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Model, Capacity, Type → Price
- Model → Read_Speeds, Write_Speeds, Brand

Decomposing on Model → Read_Speeds, Write_Speeds, Brand gives us

$R_1(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{Capacity}}: \text{INT}, \underline{\text{Interface}}: \text{VARCHAR}, \underline{\text{Type}}: \text{VARCHAR}, \underline{\text{Form_Factor}}: \text{VARCHAR}, \text{Power}: \text{INT}, \text{Price}: \text{NUMBER}, \text{MB_Model}: \text{VARCHAR}, \text{MB_Form_Factor}: \text{VARCHAR}, \text{MB_Series}: \text{VARCHAR}, \text{MB_WIFI}: \text{VARCHAR})$

- PK: {Model, Capacity, Interface, Type, Form_Factor}
- CK: {Model, Capacity, Interface, Type, Form_Factor}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

$R_2(\underline{\text{Model}}: \text{VARCHAR}, \text{Read_Speeds}: \text{INT}, \text{Write_Speeds}: \text{INT}, \text{Brand}: \text{VARCHAR})$

- PK: {Model}
- CK: {Model}

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Decomposing on Model, Capacity, Type → Price gives us

$R_3(\underline{\text{Model}}$: VARCHAR, $\underline{\text{Capacity}}$: INT, $\underline{\text{Interface}}$: VARCHAR, $\underline{\text{Type}}$: VARCHAR, $\underline{\text{Form_Factor}}$: VARCHAR, Power: INT, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- PK: {Model, Capacity, Interface, Type, Form_Factor}
- CK: {Model, Capacity, Interface, Type, Form_Factor}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

$R_4(\underline{\text{Model}}$: VARCHAR, $\underline{\text{Capacity}}$: INT, $\underline{\text{Type}}$: VARCHAR, Price: NUMBER)

- PK: {Model, Capacity, Type}
 - CK: {Model, Capacity, Type}
-

GPU_Has($\underline{\text{Model}}$: VARCHAR, $\underline{\text{Brand}}$: VARCHAR, $\underline{\text{Variant}}$: VARCHAR, $\underline{\text{VRAM}}$: INT, $\underline{\text{Design}}$: VARCHAR, Fans: INT, Power: INT, Series: VARCHAR, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Brand, Variant, VRAM, Design}
- Candidate keys: {Model, Brand, Variant, VRAM, Design}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Model → Series, Fans
- Model, Brand, Variant, Fans, Design, VRAM, Series → Price
- Model, VRAM, Fans → Power

Decomposing Model → Series, Fans gives us

$R_1(\underline{\text{Model}}$: VARCHAR, Fans: INT, Series: VARCHAR)

- PK: {Model}
- CK: {Model}

$R_2(\underline{\text{Model}}$: VARCHAR, $\underline{\text{Brand}}$: VARCHAR, $\underline{\text{Variant}}$: VARCHAR, $\underline{\text{VRAM}}$: INT, $\underline{\text{Design}}$: VARCHAR, Power: INT, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- PK: {Model, Brand, Variant, VRAM, Design}
- CK: {Model, Brand, Variant, VRAM, Design}{MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Decomposing Model, Brand, Variant, Fans, Design, VRAM, Series → Price gives us

$R_3(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{Brand}}: \text{VARCHAR}, \underline{\text{Variant}}: \text{VARCHAR}, \underline{\text{VRAM}}: \text{INT}, \underline{\text{Design}}: \text{VARCHAR}, \text{Fans: INT}, \text{Series: VARCHAR}, \text{Price: NUMBER})$

- PK: {Model, Brand, Variant, VRAM, Design}
- CK: {Model, Brand, Variant, VRAM, Design}

$R_4(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{VRAM}}: \text{INT}, \text{Fans: INT}, \underline{\text{Brand}}: \text{VARCHAR}, \underline{\text{Variant}}: \text{VARCHAR}, \underline{\text{Design}}: \text{VARCHAR}, \text{Power: INT}, \text{Series: VARCHAR}, \text{MB_Model: VARCHAR}, \text{MB_Form_Factor: VARCHAR}, \text{MB_Series: VARCHAR}, \text{MB_WIFI: VARCHAR})$

- PK: {Model, Brand, Variant, VRAM, Design}
- CK: {Model, Brand, Variant, VRAM, Design}{MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Decomposing Model, VRAM, Fans → Power gives us

$R_5(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{VRAM}}: \text{INT}, \text{Fans: INT}, \text{Power: INT})$

- PK: {Model, VRAM}
- CK: {Model, VRAM}

$R_6(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{VRAM}}: \text{INT}, \text{Fans: INT}, \underline{\text{Brand}}: \text{VARCHAR}, \underline{\text{Variant}}: \text{VARCHAR}, \underline{\text{Design}}: \text{VARCHAR}, \text{Series: VARCHAR}, \text{MB_Model: VARCHAR}, \text{MB_Form_Factor: VARCHAR}, \text{MB_Series: VARCHAR}, \text{MB_WIFI: VARCHAR})$

- PK: {Model, Brand, Variant, VRAM, Design}
- CK: {Model, Brand, Variant, VRAM, Design}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

Monitor_Attached_To($\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{Curvature}}: \text{VARCHAR}, \underline{\text{Resolution}}: \text{VARCHAR}, \underline{\text{Refresh_Rate}}: \text{INT}, \underline{\text{Size}}: \text{NUMBER}, \text{Response_Time: NUMBER}, \text{Brand: VARCHAR}, \text{Price: NUMBER}, \text{Display: VARCHAR}, \text{GPU_Model: VARCHAR}, \text{GPU_Brand: VARCHAR}, \text{GPU_Variant: VARCHAR}, \text{GPU_VRAM: INT}, \text{GPU_Design: VARCHAR}, \text{MB_Model: VARCHAR}, \text{MB_Form_Factor: VARCHAR}, \text{MB_Series: VARCHAR}, \text{MB_WIFI: VARCHAR})$

- Primary key: {Model, Curvature, Resolution, Refresh_Rate, Size}
- Candidate keys: {Model, Curvature, Resolution, Refresh_Rate, Size}

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- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}, {GPU_Model, GPU_Brand, GPU_Variant, GPU_VRAM, GPU_Design}
- Model → Brand, Display

Decomposing on Model → Brand, Display gives us

R_1 (Model: VARCHAR, Curvature: VARCHAR, Resolution: VARCHAR, Refresh_Rate: INT, Size: NUMBER, Response_Time: NUMBER, Price: NUMBER, **GPU_Model**: VARCHAR, **GPU_Brand**: VARCHAR, **GPU_Variant**: VARCHAR, **GPU_VRAM**: INT, **GPU_Design**: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- PK: {Model, Curvature, Resolution, Refresh_Rate, Size}
- CK: {Model, Curvature, Resolution, Refresh_Rate, Size}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}, {GPU_Model, GPU_Brand, GPU_Variant, GPU_VRAM, GPU_Design}

R_2 (Model: VARCHAR, Brand: VARCHAR, Display: VARCHAR)

- PK: {Model}
 - CK: {Model}
-

RAM_Placed_On(Model: VARCHAR, DDR: VARCHAR, Capacity: INT, Clock_Speed: INT, Power: INT, Price: NUMBER, Brand: VARCHAR, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, DDR, Capacity, Clock_Speed}
- Candidate keys: {Model, DDR, Capacity, Clock_Speed}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Model → Brand
- DDR, Capacity → Power

Decomposing on Model → Brand gives us

R_1 (Model: VARCHAR, DDR: VARCHAR, Capacity: INT, Clock_Speed: INT, Power: INT, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- PK: {Model, DDR, Capacity, Clock_Speed}
- CK: {Model, DDR, Capacity, Clock_Speed}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

$R_2(\underline{\text{Model}}: \text{VARCHAR}, \text{Brand}: \text{VARCHAR})$

- PK: {Model}
- CK: {Model}

Decomposing on DDR, Capacity → Power gives us

$R_3(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{DDR}}: \text{VARCHAR}, \underline{\text{Capacity}}: \text{INT}, \underline{\text{Clock_Speed}}: \text{INT}, \text{Price}: \text{NUMBER}, \text{MB_Model}: \text{VARCHAR}, \text{MB_Form_Factor}: \text{VARCHAR}, \text{MB_Series}: \text{VARCHAR}, \text{MB_WIFI}: \text{VARCHAR})$

- PK: {Model, DDR, Capacity, Clock_Speed}
- CK: {Model, DDR, Capacity, Clock_Speed}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- FK: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

$R_4(\underline{\text{DDR}}: \text{VARCHAR}, \underline{\text{Capacity}}: \text{INT}, \text{Power}: \text{INT})$

- PK: {DDR, Capacity}
 - CK: {DDR, Capacity}
-

PowerSupply_In($\underline{\text{Model}}: \text{VARCHAR}$, Brand: VARCHAR, Efficiency: VARCHAR, $\underline{\text{Form_Factor}}: \text{VARCHAR}$, $\underline{\text{Modularity}}: \text{VARCHAR}$, Wattage: INT, Price: NUMBER, **Case_Model**: VARCHAR, **Case_Colour**: VARCHAR, **Case_Size**: VARCHAR)

- Primary key: {Model, Form_Factor, Modularity}
- Candidate keys: {Model, Form_Factor, Modularity}, {Case_Model, Case_Colour, Case_Size}
- Foreign keys: {Case_Model, Case_Colour, Case_Size}
- Model → Brand, Wattage, Efficiency

Decomposing Model → Brand, Wattage, Efficiency gives us

$R_1(\underline{\text{Model}}: \text{VARCHAR}, \text{Brand}: \text{VARCHAR}, \text{Efficiency}: \text{VARCHAR}, \text{Wattage}: \text{INT})$

- PK: {Model}
- CK: {Model}

$R_2(\underline{\text{Model}}: \text{VARCHAR}, \underline{\text{Modularity}}: \text{VARCHAR}, \underline{\text{Form_Factor}}: \text{VARCHAR}, \text{Price}: \text{NUMBER}, \text{Case_Model}: \text{VARCHAR}, \text{Case_Colour}: \text{VARCHAR}, \text{Case_Size}: \text{VARCHAR})$

- PK: {Model, Modularity, Form_Factor}
 - CK: {Model, Modularity, Form_Factor}, {Case_Model, Case_Colour, Case_Size}
 - FK: {Case_Model, Case_Colour, Case_Size}
-

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Case_Contains(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Size: VARCHAR, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Colour, Size}
- Candidate keys: {Model, Colour, Size}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Model → Brand

Decomposing on Model → Brand gives us

R₁(Model: VARCHAR, Colour: VARCHAR, Size: VARCHAR, Price: NUMBER, **MB_Model**: VARCHAR, **MB_Form_Factor**: VARCHAR, **MB_Series**: VARCHAR, **MB_WIFI**: VARCHAR)

- Primary key: {Model, Colour, Size}
- Candidate keys: {Model, Colour, Size}, {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}
- Foreign keys: {MB_Model, MB_Form_Factor, MB_Series, MB_WIFI}

R₂(Model: VARCHAR, Brand: VARCHAR)

- PK: {Model}
 - CK: {Model}
-

Mouse(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Size: VARCHAR: Weight: INT, Price: NUMBER, Wired_Wireless: VARCHAR)

- Primary key: {Model, Colour}
- Candidate keys: {Model, Colour}
- Model → Brand

Decomposing on Model → Brand gives us

R₁(Model: VARCHAR, Colour: VARCHAR, Size: VARCHAR: Weight: INT, Price: NUMBER, Wired_Wireless: VARCHAR)

- PK: {Model, Colour}
- CK: {Model, Colour}

R₂(Model: VARCHAR, Brand: VARCHAR)

- PK: {Model}
 - CK: {Model}
-

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Plugged_Into(Case_Model: VARCHAR, Case_Colour: VARCHAR, Case_Size: VARCHAR, Mouse_Model: VARCHAR, Mouse_Colour: VARCHAR)

- Primary Key: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
- Candidate Key: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
- Foreign Key: {Case_Model, Case_Colour, Case_Size}, {Mouse_Model, Mouse_Colour}

This is already in BCNF as it has no functional dependencies

R(Case_Model: VARCHAR, Case_Colour: VARCHAR, Case_Size: VARCHAR, Mouse_Model: VARCHAR, Mouse_Colour: VARCHAR)

- PK: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
 - CK: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
 - FK: {Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour}
-

Keyboard(Model: VARCHAR, Percentage: NUMBER, Brand: VARCHAR, Colour: VARCHAR, Price: NUMBER)

- Primary Key: {Model}
- Candidate Keys: {Model}
- Model → Brand, Colour, Price, Percentage

This is already in BCNF as Model is a superkey (specifically it is a key)

R(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Price: NUMBER, Percentage: NUMBER)

- PK: {Model}
 - CK: {Model}
-

Switches(Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Sound: VARCHAR, Price: NUMBER)

- Primary Key: {Model, Brand, Colour, Sound}
- Candidate Keys: {Model, Brand, Colour, Sound}
- Model, Brand, Colour → Price

Decomposing on Model, Brand, Colour \rightarrow Price gives us

$R_1(\text{Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Sound: VARCHAR})$

- PK: {Model, Brand, Colour, Sound}
- CK: {Model, Brand, Colour, Sound}

$R_2(\text{Model: VARCHAR, Brand: VARCHAR, Colour: VARCHAR, Price: NUMBER})$

- PK: {Model, Brand, Colour}
 - CK: {Model, Brand, Colour}
-

Connected_To(Case_Model: VARCHAR, Case_Colour: VARCHAR, Case_Size: VARCHAR, Keyboard_Model: VARCHAR)

- Primary Key: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- Candidate Key: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- Foreign Key: {Case_Model, Case_Colour, Case_Size}, {Keyboard_Model}

This is already in BCNF as it has no functional dependencies

$R(\text{Case_Model: VARCHAR, Case_Colour: VARCHAR, Case_Size: VARCHAR, Keyboard_Model: VARCHAR})$

- PK: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- CK: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}
- FK: {Case_Model, Case_Colour, Case_Size, Keyboard_Model}

Creating & Populating Tables

Normalized CPUCooler_Cools

```
CREATE TABLE CPUCooler_On_Model(  
  Model      VARCHAR      PRIMARY KEY,  
  Lighting   VARCHAR,  
  Brand      VARCHAR,  
  Type       VARCHAR,  
  LCD        VARCHAR  
);
```

```
INSERT INTO CPUCooler_On_Model VALUES('DeepCool GAMMAXX AG400 BK ARGB', 'RGB', 'Deepcool',  
'Air', null);
```

```
INSERT INTO CPUCooler_On_Model VALUES('DeepCool GAMMAXX AG400', null, 'Deepcool', 'Air', null);
```

```
INSERT INTO CPUCooler_On_Model VALUES('DeepCool GAMMAXX AG400 WH ARGB', RGB, 'Deepcool',  
'Air', null);
```

```
INSERT INTO CPUCooler_On_Model VALUES('DeepCool GAMMAXX CT', 'RGB', 'Deepcool', 'Air', null);
```

```
INSERT INTO CPUCooler_On_Model VALUES('Corsair iCUE H150i Elite CAPELLIX XT', 'RGB', 'Corsair',  
'Liquid', null);
```

```
CREATE TABLE CPUCooler_On(  
  Model      VARCHAR,  
  Size       INT,  
  Price      NUMBER,  
  CPU_Model  VARCHAR      UNIQUE,  
  PRIMARY KEY (Model, Size),  
  FOREIGN KEY(CPU_Model) REFERENCES CPU_On ON DELETE CASCADE  
);
```

```
INSERT INTO CPUCooler_On VALUES('DeepCool GAMMAXX AG400 BK ARGB', 120, 39.99, null);
```

```
INSERT INTO CPUCooler_On VALUES('DeepCool GAMMAXX AG400', 120, 34.99, null);
```

```
INSERT INTO CPUCooler_On VALUES('DeepCool GAMMAXX AG400 WH ARGB', 120, 39.99, null);
```

```
INSERT INTO CPUCooler_On VALUES('DeepCool GAMMAXX CT', 120, 49.99, null);
```

```
INSERT INTO CPUCooler_On VALUES('Corsair iCUE H150i Elite CAPELLIX XT', 360, 284.99, null);
```

Normalized CaseFan_Inside

```
CREATE TABLE CaseFan_Inside_Model(  
  Model      VARCHAR      PRIMARY KEY,  
  Brand      VARCHAR,  
  Lighting   VARCHAR  
);
```

```
INSERT INTO CaseFan_Inside_Model('NF-P12 Redux', 'Noctua', 'none');  
INSERT INTO CaseFan_Inside_Model('NF-A20 PWM', 'Noctua', 'none');  
INSERT INTO CaseFan_Inside_Model('QL120', 'Corsair', 'RGB');  
INSERT INTO CaseFan_Inside_Model('LL120', 'Corsair', 'RGB');  
INSERT INTO CaseFan_Inside_Model('P12', 'ARCTIC', 'none');
```

```
CREATE TABLE CaseFan_Inside(  
  Model      VARCHAR,  
  Size       INT,  
  Price      NUMBER,  
  Colour     VARCHAR,  
  Case_Model VARCHAR,  
  Case_Colour VARCHAR,  
  Case_Size  VARCHAR,  
  PRIMARY KEY (Model, Size),  
  UNIQUE (Case_Model, Case_Colour, Case_Size)  
  FOREIGN KEY(Case_Model, Case_Colour, Case_Size) REFERENCES Case_Contains ON DELETE CASCADE  
);
```

```
INSERT INTO CaseFan_Inside('NF-P12 Redux', 120, 15.95, 'grey', null, null, null)  
INSERT INTO CaseFan_Inside('NF-A20 PWM', 200, 36.95, 'black', null, null, null)  
INSERT INTO CaseFan_Inside('QL120', 120, 35.99, 'black', null, null, null)  
INSERT INTO CaseFan_Inside('LL120', 120, 25.99, 'black', null, null, null)  
INSERT INTO CaseFan_Inside('P12', 120, 8.45, 'black', null, null, null)
```

Normalized CPU_On

```
CREATE TABLE CPU_On_Power(  
  Cores          VARCHAR,  
  Generation     INT,  
  Power          INT,  
);
```

```
INSERT INTO CPU_On_Power(6, 5000, 65);  
INSERT INTO CPU_On_Power(8, 7000, 120);  
INSERT INTO CPU_On_Power(16, 13, 125);  
INSERT INTO CPU_On_Power(24, 13, 125);  
INSERT INTO CPU_On_Power(6, 7000, 105);
```

```
CREATE TABLE CPU_On(  
  Model          VARCHAR          PRIMARY KEY,  
  Cores          VARCHAR,  
  Generation     INT,  
  Socket        VARCHAR,  
  Price         Number,  
  Brand         VARCHAR,  
  MB_Model      VARCHAR,  
  MB_Form_Factor VARCHAR,  
  MB_Series     VARCHAR,  
  MB_WIFI      VARCHAR,  
  FOREIGN KEY(MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES Motherboard_Powers  
  on DELETE CASCADE  
);
```

```
INSERT INTO CPU_On('Ryzen 5 5600X', 6, 5000, 'AM4', 160, 'AMD', null, null, null, null);  
INSERT INTO CPU_On('Ryzen 7 7800X3D', 8, 7000, 'AM5', 370, 'AMD', null, null, null, null);  
INSERT INTO CPU_On('Ryzen 7 5800X', 8, 5000, 'AM4', 160, 'Intel', null, null, null, null);  
INSERT INTO CPU_On('Intel Core i7-13700K', 16, 13, 'LGA 1700', 360, 'AMD', null, null, null, null);  
INSERT INTO CPU_On('Intel Core i9-13900K', 24, 13, 'LGA 1700', 570, 'AMD', null, null, null, null);
```

Normalized Motherboard_Powers

```
CREATE TABLE Motherboard_Powers_Socket(  
  CPU_Model  VARCHAR          PRIMARY KEY,  
  Socket     VARCHAR  
);
```

```
INSERT INTO Motherboard_Powers_Socket VALUES('AMD Ryzen 5 5600X 6-core', 'Socket AM4');  
INSERT INTO Motherboard_Powers_Socket VALUES('AMD Ryzen 5 5500 6-core', 'Socket AM4');  
INSERT INTO Motherboard_Powers_Socket VALUES('AMD Ryzen 5 4600G', 'Socket AM4');  
INSERT INTO Motherboard_Powers_Socket VALUES('Intel Core i5-12600K', 'LGA 1700');  
INSERT INTO Motherboard_Powers_Socket VALUES('AMD Ryzen 7 5700X', 'Socket AM4');
```

```
CREATE TABLE Motherboard_Powers(  
  Model          VARCHAR,  
  Form_Factor    VARCHAR,  
  Series         VARCHAR,  
  WIFI           VARCHAR,  
  Brand          VARCHAR,  
  Power          INT,  
  Expansion_slots VARCHAR,  
  Price          NUMBER,  
  Memory_Slots   INT,  
  DDR            VARCHAR,  
  Storage_Ports  INT,  
  CPU_Model      VARCHAR    NOT NULL,  
  PSU_Modularity VARCHAR    NOT NULL,  
  PSU_Form_Factor VARCHAR    NOT NULL,  
  PSU_Model      VARCHAR    NOT NULL,  
  PRIMARY KEY (Model, Form_Factor, Series, WIFI),  
  UNIQUE (CPU_Model),  
  UNIQUE (PSU_Modularity, PSU_Form_Factor, PSU_Model),  
  FOREIGN KEY(CPU_Model) REFERENCES CPU_On ON DELETE CASCADE,  
  FOREIGN KEY(PSU_Modularity, PSU_Form_Factor, PSU_Model) REFERENCES PowerSupply_In ON  
  DELETE CASCADE  
);
```

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```
INSERT INTO Motherboard_Powers VALUES('Pro Z690-A', 'ATX', 'Pro Z Series', 'No', 'MSI', 50, null,
299.99, 4, 'DDR4', 3, 'Intel Core i5-12600K', 'Full', 'ATX', 'CP-92020200-NA' );
INSERT INTO Motherboard_Powers VALUES('Prime B660M-A D4', 'mATX', 'Prime B660M-A D4', 'No',
'ASUS', 50, null, 169.99, 2, 'DDR4', 3, 'Intel Core i5-12600K', 'Full', 'ATX', 'CP-92020200-NA' );
INSERT INTO Motherboard_Powers VALUES('MAG Z690 TOMAHAWK WIFI', 'ATX', 'Tomahawk Series',
'MSI', 80, null, 299.99, 4, 'DDR5', 5, 'Intel Core i5-12600K', 'Full', 'ATX', 'CP-92020200-NA' );
INSERT INTO Motherboard_Powers VALUES('MSI Z690I UNIFY', 'Mini ITX', 'Z Series', 'MSI', 60, null,
519.99, 5, 'DDR5', 5, 'Intel Core i5-12600K', 'Full', 'ATX', 'CP-92020200-NA' );
INSERT INTO Motherboard_Powers VALUES('Pro Z690-P', 'ATX', 'Pro Z Series', 'MSI', 50, null, 277.99, 4,
'DDR4', 4, 'Intel Core i5-12600K', 'Full', 'ATX', 'CP-92020200-NA' );
```

Normalized Storage_Requires

```
CREATE TABLE Storage_Requires_RWSpeed(
  Model          VARCHAR          PRIMARY KEY,
  Read_Speeds    INT,
  Write_Speeds   INT,
  Brand          VARCHAR
);
```

```
INSERT INTO Storage_Requires_RWSpeed('IronWolf Pro 12', 250, 250, 'Seagate');
INSERT INTO Storage_Requires_RWSpeed('WD Red Plus', 160, 120, 'Western Digital');
INSERT INTO Storage_Requires_RWSpeed('870 EVO SATA III', 560, 530, 'Samsung');
INSERT INTO Storage_Requires_RWSpeed('WD Blue SA510', 560, 540, 'Western Digital');
INSERT INTO Storage_Requires_RWSpeed('WD_Black SN770', 5150, 4850, 'Western Digital');
```

```
CREATE TABLE Storage_Requires(
  Model          VARCHAR,
  Capacity       INT,
  Interface      VARCHAR,
  Type           VARCHAR,
  Form_Factor    VARCHAR,
  Power          INT,
  MB_Model       VARCHAR,
  MB_Form_Factor VARCHAR,
```


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```
MB_Series          VARCHAR,
MB_WIFI            VARCHAR,
PRIMARY KEY (Model, Capacity, Interface, Type, Form_Factor),
FOREIGN KEY (MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES
Motherboard_Powers ON DELETE CASCADE
);
```

```
INSERT INTO Storage_Requires('IronWolf Pro 12', 12, 'SATA', 'HDD', '3.5 Inch', 9, null, null, null null);
INSERT INTO Storage_Requires('WD Read Plus', 6, 'SATA', 'HDD', '3.5 Inch', 9, null, null, null null);
INSERT INTO Storage_Requires('870 EVO SATA III', 1, 'SATA', 'SSD', '2.5 Inch', 16, null, null, null null);
INSERT INTO Storage_Requires('WD Blue SA510', 2, 'SATA', 'SSD', '2.5 Inch', 16, null, null, null null);
INSERT INTO Storage_Requires('WD_Black SN770', 2, 'NVMe', 'SSD', 'M.2', 1, null, null, null null);
```

```
CREATE TABLE Storage_Requires_Price(
  Model          VARCHAR,
  Capacity       INT,
  Type           VARCHAR,
  Price          NUMBER,
  PRIMARY KEY (Model, Capacity, Type)
);
```

```
INSERT INTO Storage_Requires_Price('IronWolf Pro 12', 12, 'HDD', 269.99);
INSERT INTO Storage_Requires_Price('WD Red Plus', 6, 'HDD', 149.99);
INSERT INTO Storage_Requires_Price('870 EVO SATA III', 1, 'SSD', 59.99);
INSERT INTO Storage_Requires_Price('WD Blue SA510', 2, 'SSD', 129.99);
INSERT INTO Storage_Requires_Price('WD_Black SN770', 2, 'SSD', 99.99);
```

Normalized GPU_Has

```
CREATE TABLE GPU_Has_Model(
  Model          VARCHAR          PRIMARY KEY,
  Fans           INT
);
```

```
INSERT INTO GPU_Has_Model('RTX 2060', 3);
INSERT INTO GPU_Has_Model('RTX 2060', 2);
```

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```
INSERT INTO GPU_Has_Model('GTX 1050', 3);
INSERT INTO GPU_Has_Model('GTX 980', 2);
INSERT INTO GPU_Has_Model('RX 6800', 3);
INSERT INTO GPU_Has_Model('GTX 1050', 2);
```

```
CREATE TABLE GPU_Has_Price(
  Model      VARCHAR,
  Brand      VARCHAR,
  Variant    VARCHAR,
  VRAM       INT,
  Design     VARCHAR,
  Fans       INT,
  Series     VARCHAR,
  Price      NUMBER,
  PRIMARY KEY(Model, Brand, Variant, VRAM, Design)
);
```

```
INSERT INTO GPU_Has_Price('RTX 2060', 'MSI', 'OC', 6, 'Black', 3, 'MSI GeForce RTX 2060', 650);
INSERT INTO GPU_Has_Price('RTX 2060', 'ASUS', 'OC', 12, 'Black', 3, 'Dual NVIDIA GeForce RTX 2060',
500);
INSERT INTO GPU_Has_Price('GTX 1050', 'ASUS', 'TI', 4, 'Black', 1, 'ASUS PH-GTX 1050', 230);
INSERT INTO GPU_Has_Price('GTX 1050', 'MSI', 'OC TI', 4, 'Black', 2, 'MSI GTX 1050', 450);
INSERT INTO GPU_Has_Price('GTX 1050', 'MSI', 'TI', 4, Red, 2, 'MSI GTX 1050', 380);
```

```
CREATE TABLE GPU_Has_Power(
  Model      VARCHAR
  VRAM       INT
  Fans       INT
  Power      INT,
  PRIMARY KEY(Model, VRAM)
);
```

```
INSERT INTO GPU_Has_Power('RTX 3060', 8, 3, 170);
INSERT INTO GPU_Has_Power('GTX 1060', 6, 3, 100);
INSERT INTO GPU_Has_Power('RTX 2060', 16, 3, 190);
INSERT INTO GPU_Has_Power('RTX 4060', 16, 3, 160);
INSERT INTO GPU_Has_Power('GTX 1050', 8, 3, 75);
```

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```
CREATE TABLE GPU_Has(  
  Model          VARCHAR,  
  VRAM:          INT,  
  Fans:          INT,  
  Brand:         VARCHAR,  
  Variant:       VARCHAR,  
  Design:        VARCHAR,  
  Series:        VARCHAR,  
  MB_Model:      VARCHAR,  
  MB_Form_Factor: VARCHAR,  
  MB_Series:     VARCHAR,  
  MB_WIFI:       VARCHAR,  
  PRIMARY KEY(Model, VRAM, Brand, Variant, Design)  
  FOREIGN KEY(MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES Motherboard_Powers  
  ON DELETE CASCADE  
);
```

```
INSERT INTO GPU_Has('RTX 3060', 16, 3, 'ASUS', 'Ti', 'Black', 'ASUS TUF GeForce RTX 3060' null, null,  
null, null);  
INSERT INTO GPU_Has('RTX 3050', 16, 3, 'ASUS', 'OC Ti', 'Black', 'ASUS TUF GeForce RTX 3050' null, null,  
null, null);  
INSERT INTO GPU_Has('RTX 4060', 16, 3, 'MSI', 'Ti', 'Black', 'MSI GeForce RTX 4060' null, null, null, null);  
INSERT INTO GPU_Has('GTX 1050', 16, 3, 'MSI', 'Ti', 'Black', 'MSI GeForce RTX 1050' null, null, null, null);  
INSERT INTO GPU_Has('GTX 1050', 8, 2, 'MSI', 'OC', 'Black', 'MSI GTX 1050' null, null, null, null);
```

Normalized Monitor_Attached_To

```
CREATE TABLE Monitor_Attached_To_Model(  
  Model          VARCHAR          PRIMARY KEY,  
  Brand          VARCHAR,  
  Display        VARCHAR  
);
```

```
INSERT INTO Monitor_Attached_To_Model VALUES('LG 24MP40A-C Full HD LCD', 'LG', 'LCD');  
INSERT INTO Monitor_Attached_To_Model VALUES('Samsung LS24R350FZNXZA LED-Lit Monitor',  
'Samsung', 'LED');
```

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```
INSERT INTO Monitor_Attached_To_Model VALUES('Samsung LS24T350FHNXZA LED-Lit Monitor',  
'Samsung', 'LED');
```

```
INSERT INTO Monitor_Attached_To_Model VALUES('Alienware AW3423DWF QD-OLED LED',  
'Alienware', 'OLED');
```

```
INSERT INTO Monitor_Attached_To_Model VALUES('Samsung LS32B200NWNXGO LED Monitor',  
'Samsung', 'LED');
```

```
CREATE TABLE Monitor_Attached_To(
```

```
    Model          VARCHAR,
```

```
    Curvature      VARCHAR,
```

```
    Resolution     VARCHAR,
```

```
    Refresh_Rate   INT,
```

```
    Size           NUMBER,
```

```
    Response_Time  NUMBER,
```

```
    Price          NUMBER,
```

```
    GPU_Model      VARCHAR,
```

```
    GPU_Brand      VARCHAR,
```

```
    GPU_Variant    VARCHAR,
```

```
    GPU_VRAM       INT,
```

```
    GPU_Design     VARCHAR,
```

```
    GPU_Brand      VARCHAR,
```

```
    GPU_Variant    VARCHAR,
```

```
    MB_Model       VARCHAR,
```

```
    MB_Form_Factor VARCHAR,
```

```
    MB_Series      VARCHAR,
```

```
    MB_WIFI        VARCHAR,
```

```
    PRIMARY KEY (Model, Curvature, Resolution, Refresh_Rate, Size),
```

```
    FOREIGN KEY(MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES Motherboard_Powers  
ON DELETE CASCADE,
```

```
    FOREIGN KEY(GPU_Model, GPU_Brand, GPU_Variant, GPU_VRAM, GPU_Design) REFERENCES  
GPU_Has ON DELETE CASCADE
```

```
);
```

```
INSERT INTO Monitor_Attached_To VALUES('Alienware AW3423DWF QD-OLED LED', '1800R', '3440 x  
1440', 165, 34, 0.1, 999.99, null, null, null, null, null, null, null, null, null);
```

```
INSERT INTO Monitor_Attached_To VALUES('Samsung LS32B200NWNXGO LED Monitor', '4000R', '1920  
x 1080', 75, 32, 8, 199.99, null, null, null, null, null, null, null, null, null);
```

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```
INSERT INTO Monitor_Attached_To VALUES('Samsung LS24T350FHNXZA LED-Lit Monitor', '4000R',
'1920 x 1080', 75, 24, 5, 128.00, null, null, null, null, null, null, null, null);
INSERT INTO Monitor_Attached_To VALUES('Samsung LS24R350FZNXZA LED-Lit Monitor', '4000R',
'1920 x 1080', 75, 24, 5, 128.00, null, null, null, null, null, null, null, null);
INSERT INTO Monitor_Attached_To VALUES('LG 24MP40A-C Full HD LCD', '4000R', '1920 x 1080', 75,
23.8, 5, 118.00, null, null, null, null, null, null, null, null);
```

Normalized RAM_Placed_On

```
CREATE TABLE RAM_Placed_On_Brand(
  Model      VARCHAR      PRIMARY KEY,
  Brand      VARCHAR
);
```

```
INSERT INTO RAM_Placed_On_Brand('VENGEANCE LPX', 'Corsair');
INSERT INTO RAM_Placed_On_Brand('VENGEANCE RGB PRO SL', 'Corsair');
INSERT INTO RAM_Placed_On_Brand('VENGEANCE LPX PRO', 'Corsair');
INSERT INTO RAM_Placed_On_Brand('VENGEANCE DDR5', 'Corsair');
INSERT INTO RAM_Placed_On_Brand('VENGEANCE SODIMM', 'Corsair');
```

```
CREATE TABLE RAM_Placed_On(
  Model          VARCHAR,
  DDR            VARCHAR,
  Capacity       INT,
  Clock_Speed    INT,
  Price          NUMBER,
  MB_Model       VARCHAR,
  MB_Form_Factor VARCHAR,
  MB_Series      VARCHAR,
  MB_WIFI        VARCHAR,
  PRIMARY KEY (Model, DDR, Capacity, Clock_Speed),
  FOREIGN KEY (MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES Motherboard_Powers
ON DELETE CASCADE
);
```

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```
INSERT INTO RAM_Placed_On('VENGEANCE LPX', 'DDR4', 32, 3200, 114.00, null, null, null, null);
INSERT INTO RAM_Placed_On('VENGEANCE RGB PRO SL', 'DDR4', 32, 3600, 134.99, null, null, null, null);
INSERT INTO RAM_Placed_On('VENGEANCE RGB PRO', 'DDR4', 32, 3600, 79.99, null, null, null, null);
INSERT INTO RAM_Placed_On('VENGEANCE DDR5', 'DDR5', 32, 5600, 94.66, null, null, null, null);
INSERT INTO RAM_Placed_On('VENGEANCE SODIMM', 'DDR5', 32, 4800, 94.99, null, null, null, null);
```

```
CREATE TABLE RAM_Placed_On_Power(
  DDR          VARCHAR,
  Capacity      INT,
  Power         INT
  PRIMARY KEY (DDR, Capacity)
);
```

```
INSERT INTO RAM_Placed_On_Power('DDR4', 32, 12);
INSERT INTO RAM_Placed_On_Power('DDR4', 32, 12);
INSERT INTO RAM_Placed_On_Power('DDR4', 32, 12);
INSERT INTO RAM_Placed_On_Power('DDR5', 32, 16);
INSERT INTO RAM_Placed_On_Power('DDR5', 32, 16);
```

Normalized PowerSupply_In

```
CREATE TABLE PowerSupply_In_Model(
  Model          VARCHAR,
  Brand          VARCHAR,
  Efficiency      VARCHAR,
  Wattage        INT,
  PRIMARY KEY(Model, Form_Factor)
);
```

```
INSERT INTO PowerSupply_In_Model('RM750e', 'CORSAIR', '80+ Gold', 750);
INSERT INTO PowerSupply_In_Model('RM1000x', 'CORSAIR', '80+ Gold', 1000);
INSERT INTO PowerSupply_In_Model('Toughpower GX2', 'Thermaltake', '80+ Gold', 600);
INSERT INTO PowerSupply_In_Model('SF750', 'CORSAIR', '80+ Platinum', 1200);
INSERT INTO PowerSupply_In_Model('CX650M', 'CORSAIR', '80+ Bronze', 650);
```

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```
CREATE TABLE PowerSupply_in(  
  Model          VARCHAR,  
  Modularity     VARCHAR,  
  Form_Factor   VARCHAR,  
  Price          NUMBER,  
  Case_Model     VARCHAR,  
  Case_Colour    VARCHAR,  
  Case_Size      VARCHAR,  
  PRIMARY KEY(Model, Modularity, Form_Factor),  
  FOREIGN KEY(Case_Model, Case_Colour, Case_Size) REFERENCES Case_Contains ON DELETE CASCADE  
);
```

```
INSERT INTO PowerSupply_In('RM750e', Full, 'ATX', 100);  
INSERT INTO PowerSupply_In('RM1000x', Full, 'ATX', 170);  
INSERT INTO PowerSupply_In('ToughPower GX2', None, 'ATX', 65);  
INSERT INTO PowerSupply_In('CX650M', Semi, 'ATX', 70);  
INSERT INTO PowerSupply_In('RM1000e', Full, 'ATX', 160);
```

Normalized Case_Contains

```
CREATE TABLE Case_Contains(  
  Model          VARCHAR,  
  Colour         VARCHAR,  
  Size           VARCHAR,  
  Price          NUMBER,  
  MB_Model       VARCHAR,  
  MB_Form_Factor VARCHAR,  
  MB_Series      VARCHAR,  
  MB_WIFI        VARCHAR,  
  PRIMARY KEY (Model, Colour, Size),  
  UNIQUE (MB_Model, MB_Form_Factor, MB_Series, MB_WIFI),  
  FOREIGN KEY(MB_Model, MB_Form_Factor, MB_Series, MB_WIFI) REFERENCES Motherboard_Powers  
ON DELETE CASCADE,  
);
```

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```
INSERT INTO Case_Contains VALUES('Corsair 4000D CC-9011200-WW', 'Black', 'Mid-Tower', 119.98,
null, null, null, null);
INSERT INTO Case_Contains VALUES('Corsair 4000D CC-9011201-WW', 'White', 'Mid-Tower', 119.99,
null, null, null, null);
INSERT INTO Case_Contains VALUES('Corsair iCUE 4000X RGB CC-9011204-WW', 'Black', 'Mid-Tower',
159.99, null, null, null, null);
INSERT INTO Case_Contains VALUES('Corsair iCUE 4000X RGB CC-9011205-WW', 'White', 'Mid-Tower',
189.99, null, null, null, null);
INSERT INTO Case_Contains VALUES('Corsair 5000D CC-9011210-WW', 'Black', 'Mid-Tower', 204.99,
null, null, null, null);
```

```
CREATE TABLE Case_Contains_Brand(
    Model      VARCHAR      PRIMARY KEY,
    Brand      VARCHAR
);
```

```
INSERT INTO Case_Contains_Brand VALUES('Corsair 4000D CC-9011200-WW', 'Corsair');
INSERT INTO Case_Contains_Brand VALUES('Corsair 4000D CC-9011201-WW', 'Corsair');
INSERT INTO Case_Contains_Brand VALUES('Corsair iCUE 4000X RGB CC-9011204-WW', 'Corsair');
INSERT INTO Case_Contains_Brand VALUES('Corsair iCUE 4000X RGB CC-9011205-WW', 'Corsair');
INSERT INTO Case_Contains_Brand VALUES('Corsair 5000D CC-9011210-WW', 'Corsair');
```

Normalized Mouse

```
CREATE TABLE Mouse(
    Model      VARCHAR,
    Colour     VARCHAR,
    Size       VARCHAR,
    Weight     INT,
    Price      NUMBER,
    Wired_Wireless VARCHAR,
    PRIMARY KEY (Model, Colour)
);
```

```
INSERT INTO Mouse('G305 LIGHTSPEED', 'Black', 'Standard', 99, 49.99, 'Wireless');
```


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```
INSERT INTO Mouse('G502 HERO', 'Black', 'Standard', 89, 79.99, 'Wired');
INSERT INTO Mouse('Basilisk V3', 'Black', 'Ergonomic', 128, 69.99, 'Wired');
INSERT INTO Mouse('DeathAdder', 'Black', 'Standard', 96, 29.99, 'Wired');
INSERT INTO Mouse('DeathAdder V2 Pro', 'Black', 'Standard', 88, 129.99, 'Wireless');
```

```
CREATE TABLE Mouse_Brand(
  Model      VARCHAR      PRIMARY KEY,
  Brand      VARCHAR
);
```

```
INSERT INTO Mouse_Brand('G305 LIGHTSPEED', 'Logitech');
INSERT INTO Mouse_Brand('G502 HERO', 'Logitech');
INSERT INTO Mouse_Brand('Basilisk V3', 'Razer');
INSERT INTO Mouse_Brand('DeathAdder', 'Razer');
INSERT INTO Mouse_Brand('DeathAdder V2 Pro', 'Razer');
```

Normalized Plugged_Into

```
CREATE TABLE Plugged_Into(
  Case_Model      VARCHAR
  Case_Colour     VARCHAR
  Case_Size       VARCHAR
  Mouse_Model     VARCHAR
  Mouse_Colour    VARCHAR
  PRIMARY KEY(Case_Model, Case_Colour, Case_Size, Mouse_Model, Mouse_Colour)
  FOREIGN KEY(Case_Model, Case_Colour, Case_Size) REFERENCES Case_Contains ON DELETE CASCADE,
  FOREIGN KEY(Mouse_Model, Mouse_Colour) REFERENCES Mouse ON DELETE CASCADE,
);
```

```
INSERT INTO Plugged_Into('Corsair 4000D CC-9011200-WW', 'Black', 'Mid-Tower', 'G305 LIGHTSPEED',
'Black');
INSERT INTO Plugged_Into('Corsair 4000D CC-9011201-WW', 'White', 'Mid-Tower', 'G502 HERO',
'Black');
INSERT INTO Plugged_Into('Corsair iCUE 4000X RGB CC-9011204-WW', 'Black', 'Mid-Tower', 'Basilisk
V3', 'Black');
```

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```
INSERT INTO Plugged_Into('Corsair iCUE 4000X RGB CC-9011205-WW', 'White', 'Mid-Tower',  
'DeathAdder', 'Black');  
INSERT INTO Plugged_Into('Corsair 5000D CC-9011210-WW', 'Black', 'Mid-Tower', 'DeathAdder V2 Pro',  
'Black');
```

Normalized Keyboard

```
CREATE TABLE Keyboard(  
  Model      VARCHAR      PRIMARY KEY,  
  Brand      VARCHAR,  
  Colour     VARCHAR,  
  Price      NUMBER,  
  Percentage  NUMBER  
);  
  
INSERT INTO Keyboard_Brand VALUES('Corsair K55 Pro Lite', 'Corsair', 'Black', 100.00, 74.95);  
INSERT INTO Keyboard_Brand VALUES('Corsair K70 Pro Mini Wireless', 'Corsair', 'Black', 60.00, 259.99);  
INSERT INTO Keyboard_Brand VALUES('Corsair K100 Air Wireless RGB Ultra-Thin', 'Corsair', 'Black',  
100.00, 399.99);  
INSERT INTO Keyboard_Brand VALUES('Corsair K100 RGB Optical-Mechanical', 'Corsair', 'Black', 100.00,  
349.99);  
INSERT INTO Keyboard_Brand VALUES('Corsair K70 Core RGB Mechanical', 'Corsair', 'Black', 100.00,  
149.99);
```

Normalized Switches

```
CREATE TABLE Switches(  
  Model      VARCHAR,  
  Brand      VARCHAR,  
  Colour     VARCHAR,  
  Sound      VARCHAR,  
  PRIMARY KEY (Model, Brand, Colour, Sound)  
);
```

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```
INSERT INTO Switches('Oil King Axis Pre Lubricated', 'Gateron', 'Black', 'Linear');
INSERT INTO Switches('Panda Switch Lubed', 'Glorious Gaming', 'Orange', 'Tactile');
INSERT INTO Switches('Panda Switch Unlubed', 'Glorious Gaming', 'Orange', 'Tactile');
INSERT INTO Switches('Wisteria 39gf Linear', 'EPOMAKER', 'Wisteria', 'Linear');
INSERT INTO Switches('Dawn Pink 38gf Linear', 'EPOMAKER', 'Dawn Pink', 'Linear');
```

```
CREATE TABLE Switches_Price(
  Model      VARCHAR,
  Brand      VARCHAR,
  Colour     VARCHAR,
  Price      NUMBER,
  PRIMARY KEY (Model, Brand, Colour)
);
```

```
INSERT INTO Switches_Price('Oil King Axis Pre Lubricated', 'Gateron', 'Black', 28.90);
INSERT INTO Switches_Price('Panda Switch Lubed', 'Glorious Gaming', 'Orange', 54.99);
INSERT INTO Switches_Price('Panda Switch Unlubed', 'Glorious Gaming', 'Orange', 24.99);
INSERT INTO Switches_Price('Wisteria 39gf Linear', 'EPOMAKER', 'Wisteria', 11.99);
INSERT INTO Switches_Price('Dawn Pink 38gf Linear', 'EPOMAKER', 'Dawn Pink', 11.99);
```

Normalized Connected_To

```
CREATE TABLE Connected_To(
  Case_Model      VARCHAR,
  Case_Colour     VARCHAR,
  Case_Size       VARCHAR,
  Keyboard_Model  VARCHAR,
  PRIMARY KEY(Case_Model, Case_Colour, Case_Size, Keyboard_Model),
  FOREIGN KEY(Case_Model, Case_Colour, Case_Size) REFERENCES Case_Contains ON DELETE CASCADE,
  FOREIGN KEY(Keyboard_Model) REFERENCES Keyboard ON DELETE CASCADE
);
```

```
INSERT INTO Connected_To('Corsair 4000D CC-9011200-WW', 'Black', 'Mid-Tower', 'Corsair K55 Pro Lite');
```

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```
INSERT INTO Connected_To('Corsair 4000D CC-9011201-WW', 'White', 'Mid-Tower', 'Corsair K70 Pro Mini Wireless');
```

```
INSERT INTO Connected_To('Corsair iCUE 4000X RGB CC-9011204-WW', 'Black', 'Mid-Tower', 'Corsair K100 Air Wireless RGB Ultra-Thin');
```

```
INSERT INTO Connected_To('Corsair iCUE 4000X RGB CC-9011205-WW', 'White', 'Mid-Tower', 'Corsair K100 RGB Optical-Mechanical');
```

```
INSERT INTO Connected_To('Corsair 5000D CC-9011210-WW', 'Black', 'Mid-Tower', 'Corsair K70 Core RGB Mechanical');
```