Bsidesoft co.

CODE SPITZ

귀여운 스피츠를 마스코트로 하고 있는 프론트엔드 프로그래밍 스쿨입니다.

1. 본 강의는 ES6 이후의 문법을 기준으로 하고 있습니다.
2. 취지에 따라 기초 문법이나 사용법을 포함하지 않고 있습니다.
3. 기본 문법이나 기초 개념이 없으신 분들이 듣기에 무리인 수업입니다.

즉 초심자나 입문자보다는

보다 높은 수준의 개발 개념과 원리 이해를 원하는 개발자

를 위해 설계된 과정입니다.

코드스피츠는 기수별로 진행되며 한 기수에는 4개의 과정이 포함되어있습니다.

1. CSS의 원리와 사양 및 응용
프론트엔드의 기본이 되는 CSS를 공부합니다.
normal flow, box model, position, CSSOM, transform, SASS, semantic web, CSS query, display, flex box

2. 흐름 제어
언어의 기본 구성과 프로그램 원리를 배우며 흐름 제어를 중심으로 다양한 모던 제어 시스템을 배웁니다.
메모리 모델, 노이만 머신, 스크립트 언어의 이해, 흐름제어와 문, 이터레이션과 제네레이터,
반복 추상화와 지연실행, 블록 넌블록, 동기 비동기, 프라미스, async

3. 함수와 클래스
프로그래밍 시 주요한 도구인 함수와 클래스를 사용해보면서 각각의 실질적인 의미를 공부합니다.
서브루틴, recursive, 재귀최적화, 클로저와 쉐도잉, 코루틴, 스택, OOAD

4. 디자인패턴과 뷰패턴
객체지향프로그래밍의 기본이 되는 디자인 패턴과 프레임웍 레벨에서 사용되는 뷰패턴을 공부합니다.
패턴의 개념, 다양한 디자인 패턴의 응용, MVC, MVVM

각 과정은 순서대로 열리며 모든 과정이 끝나면 새로운 기수가 시작됩니다.

CODESPITZ 3RD-3 COMPLETED
CODESPITZ 3RD-3 COMPLETED

JOB
CODESPITZ 77

CODE SPITZ

WORK
CODESPITZ X HIKA

CODE SPITZ 3RD 3

DESIGN PATTERN & VIEW PATTERN

1 2 3 4 5 6

WARMING UP
ES2015+ & HTML5

WARMING UP

```
{
         "title":"TIOBE Index for June 2017",
         "header":["Jun-17","Jun-16","Change","Programming Language","Ratings","Change"],
         "items":[
                  [1,1,"","Java","14.49%","-6.30%"],
                  [2,2,"","C","6.85%","-5.53%"],
                  [3,3,"","C++","5.72%","-0.48%"],
                  [4,4,"","Python","4.33%","0.43%"],
                  [5,5,"","C#","3.53%","-0.26%"],
                  [6,9,"","change","Visual Basic .NET","3.11%","0.76%"],
                  [7,7,"","JavaScript","3.03%","0.44%"],
                  [8,6,"change","PHP","2.77%","-0.45%"],
                  [9,8,"change","Perl","2.31%","-0.09%"],
                  [10,12,"change","Assembly language","2.25%","0.13%"],
                  [11,10,"change","Ruby","2.22%","-0.11%"],
                  [12,14,"change","Swift","2.21%","0.38%"],
                  [13,13,"","Delphi/Object Pascal","2.16%","0.22%"],
                  [14,16,"change","R","2.15%","0.61%"],
                  [15,48,"change","Go","2.04%","1.83%"],
                  [16,11,"change","Visual Basic,2.01%","-0.24%"],
                  [17,17,"","MATLAB","2.00%","0.55%"],
                  [18,15,"change","Objective-C","1.96%","0.25%"],
                  [19,22,"change","Scratch","1.71%","0.76%"],
                  [20,18,"change","PL/SQL","1.57%","0.22%"]
         ]
}
```

https://goo.gl/XHpnMF

WARMING UP

```
<!doctype html>
<html>
<head>
<meta charset="utf-8">
<title>CodeSpitz75-1</title>
</head>
<body>
    <section id="data"></section>
<script>
const Table =(_=>{

    return class{







    };
})();
const table = new Table("#data");
table.load("75_1.json");
</script>
</body>
</html>
```

WARMING UP

```
const Table =(_=>{
        static private
   return class{

          constructor
        public methods
       private methods

   };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{

   return class{
      constructor(parent){
      }
      load(url){
      }


   };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{

   return class{
      constructor(parent){
      }
      load(url){
      }
      render(){
      }
   };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{
   const Private = Symbol();
   return class{
      constructor(parent){
      }
      load(url){
      }
      render(){
      }
   };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{
   const Private = Symbol();
   return class{
      constructor(parent){
         if(typeof parent != 'string' || !parent) throw "invalid param";
         this[Private] = {parent};
      }
      load(url){
      }
      render(){
      }
   };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){
      if(typeof parent != 'string' || !parent) throw "invalid param";
      this[Private] = {parent};
    }
    load(url){
      fetch(url).then(response=>response.json()).then(_=>this.render());
    }
    render(){
    }
  };
})();
const table = new Table("#data");
table.load("75_1.json");
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){
      if(typeof parent != 'string' || !parent) throw "invalid param";
      this[Private] = {parent};
    }
    load(url){
      fetch(url).then(response=>response.json()).then(json=>this.render());
    }
    async load(url){
      const response = await fetch(url), json = await response.json();
      this.render();
    }
    render(){
    }
  };
})();
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){
      if(typeof parent != 'string' || !parent) throw "invalid param";
      this[Private] = {parent};
    }
    async load(url){
      const response = await fetch(url);
      if(!response.ok) throw "invaild response";
      const {title, header, items} = await response.json();
      if(!items.length) throw "no items";
      Object.assign(this[Private], {title, header, items});
      this.render();
    }
    render(){
    }
  };
})();
```

WARMING UP

```
const Table =(_=>{
   const Private = Symbol();
   return class{
      constructor(parent){...}
      async load(url){...}
       render(){
      }
   };
})();
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으로
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

```
const {parent, items} = this[Private];
const parentEl = document.querySelector(parent);
if(!parentEl) throw "invaild parent element";
if(! items || ! items.length){
  parentEl.innerHTML = "no data";
  return;
}else parent.innerHTML = "";
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

```
const {parent,title,header,items} = this[Private];
const parentEl = document.querySelector(parent);
if(!parentEl) throw "invaild parent element";
if(! items || ! items.length){
  parentEl.innerHTML = "no data";
  return;
}else parent.innerHTML = "";
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으로
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

```
const table = document.createElement("table");
const caption = document.createElement("caption");
caption.innerHTML = title;
table.appendChild(caption);
```

WARMING UP

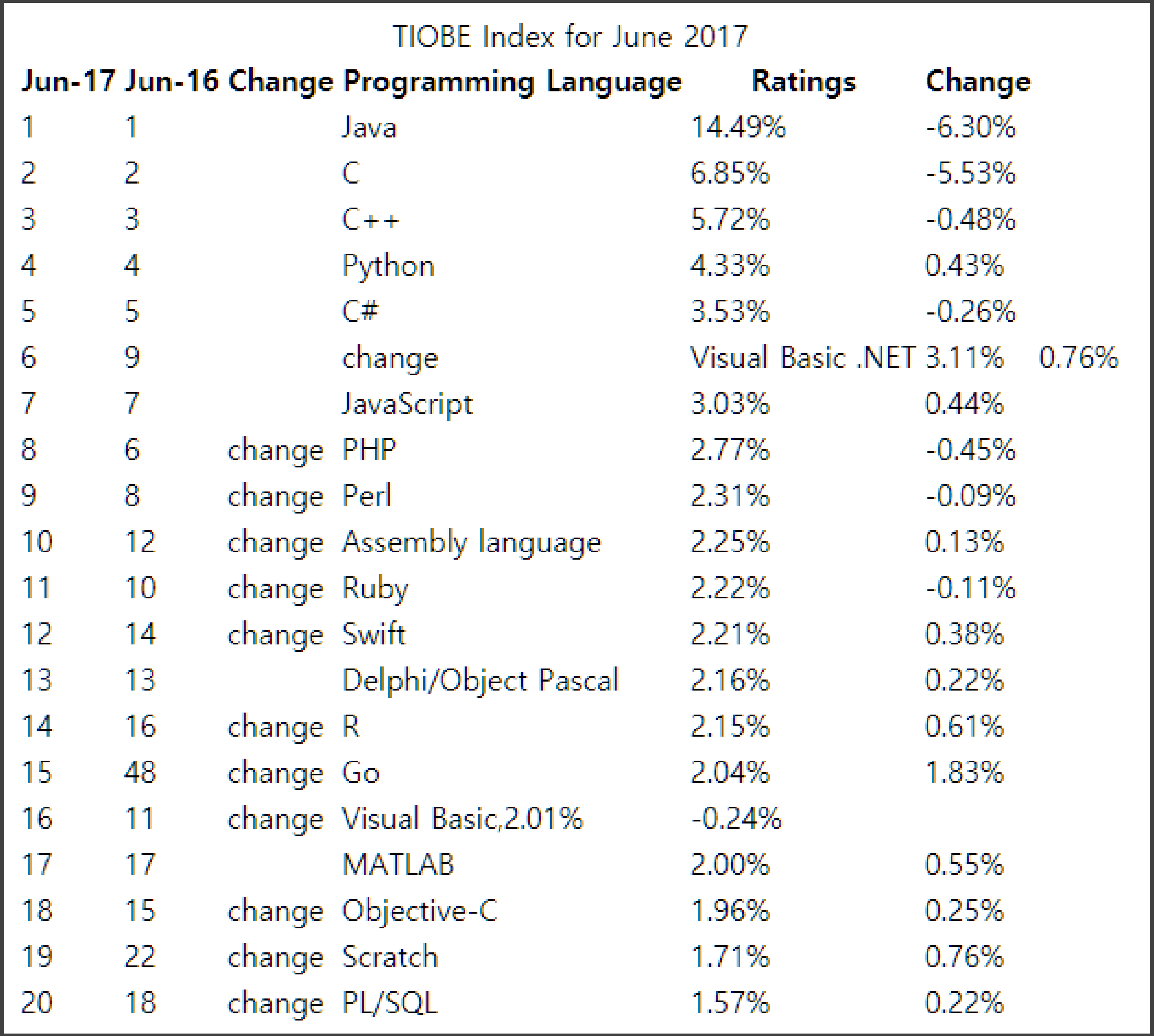
```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으로
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

```
table.appendChild(
  header.reduce((thead, data)=>{
    const th = document.createElement("th");
    th.innerHTML = data;
    thead.appendChild(th);
    return thead;
  }, document.createElement("thead"))
);
```

WARMING UP

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){...}
    async load(url){...}
    render(){
      //부모, 데이터 체크
      //table생성
      //title을 caption으로
      //header를 thead로
      //items를 tr로
      //부모에 table삽입
    }
  };
})();
```

```
items.map(
  item=>item.reduce((tr, data)=>{
    const td = document.createElement("td");
    td.innerHTML = data;
    tr.appendChild(td);
    return tr;
  }, document.createElement("tr"))
).forEach(el=>table.appendChild(el));
parentEl.appendChild(table);
```



TIOBE Index for June 2017

Jun-17	Jun-16	Change	Programming Language	Ratings	Change	
1	1		Java	14.49%	-6.30%	
2	2		C	6.85%	-5.53%	
3	3		C++	5.72%	-0.48%	
4	4		Python	4.33%	0.43%	
5	5		C#	3.53%	-0.26%	
6	9		change	Visual Basic .NET	3.11%	0.76%
7	7		JavaScript	3.03%	0.44%	
8	6	change	PHP	2.77%	-0.45%	
9	8	change	Perl	2.31%	-0.09%	
10	12	change	Assembly language	2.25%	0.13%	
11	10	change	Ruby	2.22%	-0.11%	
12	14	change	Swift	2.21%	0.38%	
13	13		Delphi/Object Pascal	2.16%	0.22%	
14	16	change	R	2.15%	0.61%	
15	48	change	Go	2.04%	1.83%	
16	11	change	Visual Basic,2.01%	-0.24%		
17	17		MATLAB	2.00%	0.55%	
18	15	change	Objective-C	1.96%	0.25%	
19	22	change	Scratch	1.71%	0.76%	
20	18	change	PL/SQL	1.57%	0.22%	

https://goo.gl/tXfseq

INTRODUCTION

프로그래밍 세계에서 유일하게 변하지 않는 원칙

프로그래밍 세계에서 유일하게 변하지 않는 원칙

"모든 프로그램은 변한다"

프로그래밍 세계에서 유일하게 변하지 않는 원칙

"모든 프로그램은 변한다"

▼

이미 작성된 복잡하고 거대한 프로그램을
어떻게 변경할 수 있을 것인가?

프로그래밍 세계에서 유일하게 변하지 않는 원칙

"모든 프로그램은 변한다"

▼

이미 작성된 복잡하고 거대한 프로그램을
어떻게 변경할 수 있을 것인가?

"격리(Isolation)"

결국 소프트웨어 공학의 상당 부분은

"격리 전략"

결국 소프트웨어 공학의 상당 부분은

"격리 전략"

▼

격리전략의 기본

결국 소프트웨어 공학의 상당 부분은

"격리 전략"

▼

격리전략의 기본

"변화율에 따라 작성하기"

변화율이란 시간적인 대칭성

"변화의 원인과 주기별로 정리"

변화율이란 시간적인 대칭성

"변화의 원인과 주기별로 정리"

▼

실천수칙

변화율이란 시간적인 대칭성

"변화의 원인과 주기별로 정리"

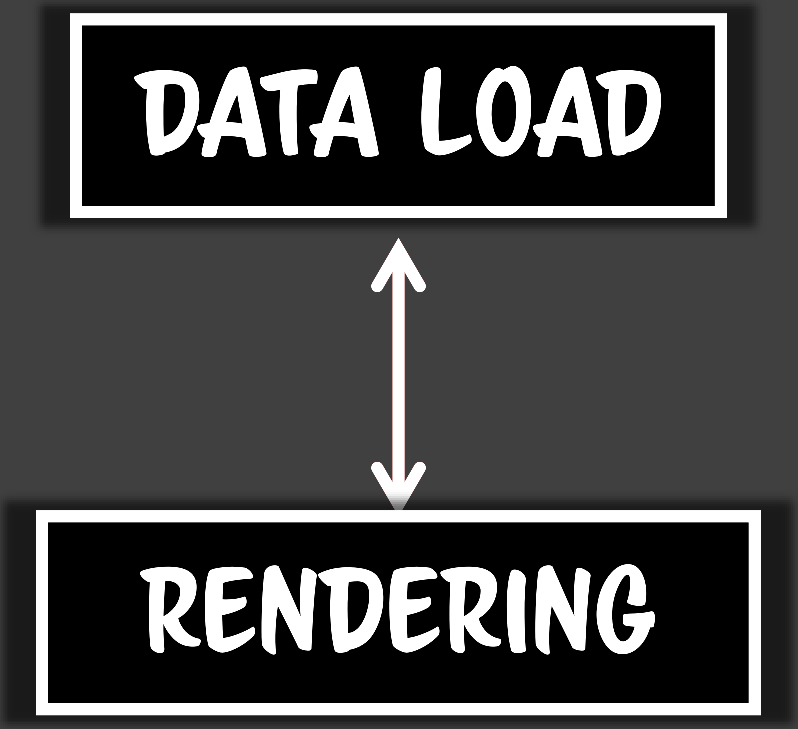
▼

실천수칙

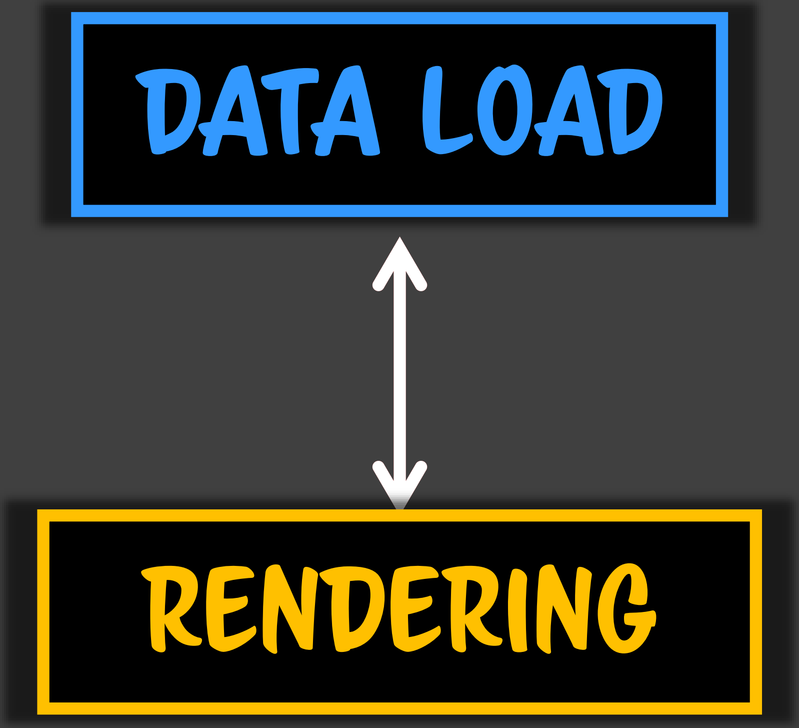
"강한 응집성" & "약한 의존성"

```
const Table =(_=>{
  const Private = Symbol();
  return class{
    constructor(parent){}
    async load(url){}
    render(){}
  };
})();

const table = new Table("#data");
table.load("75_1.json");
```

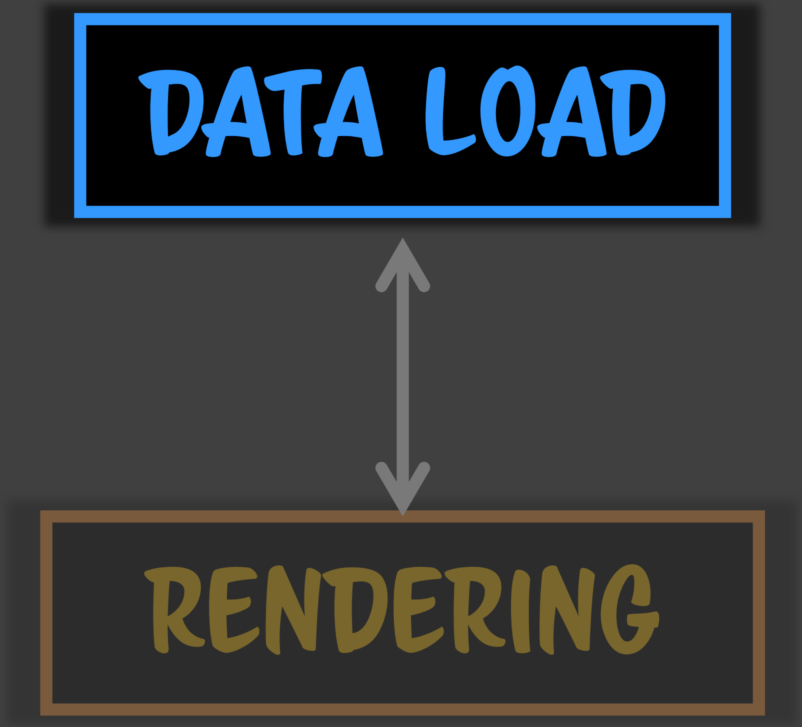
```
const Table =(_=>{
   const Private = Symbol();
   return class{
      constructor(parent){}
      async load(url){}
      render(){}
   };
})();

const table = new Table("#data");
table.load("75_1.json");
```



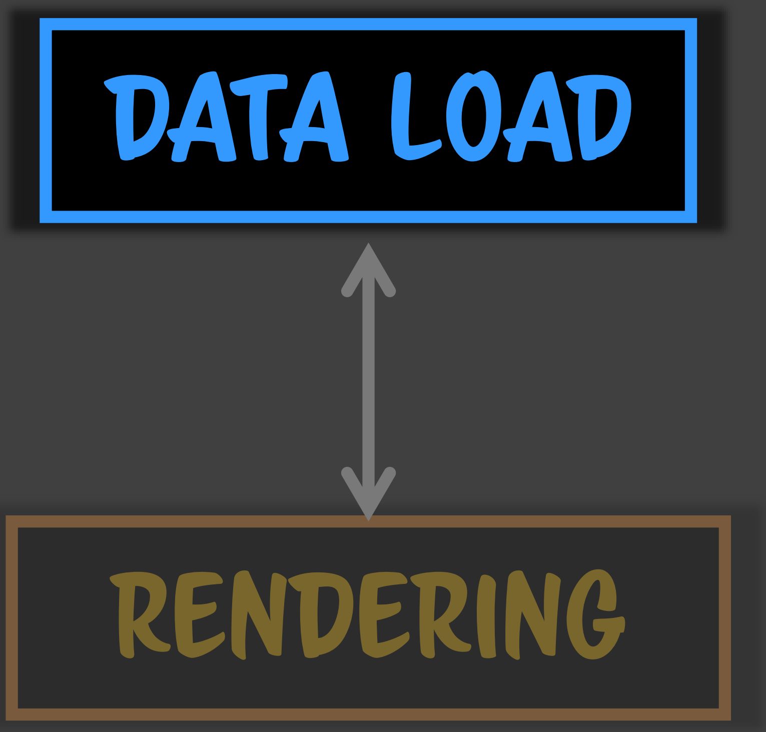
```
const Table =(_=>{
   const Private = Symbol();
   return class{
      constructor(parent){}
      async load(url){}
      render(){}
   };
})();

const table = new Table("#data");
table.load("75_1.json");
```



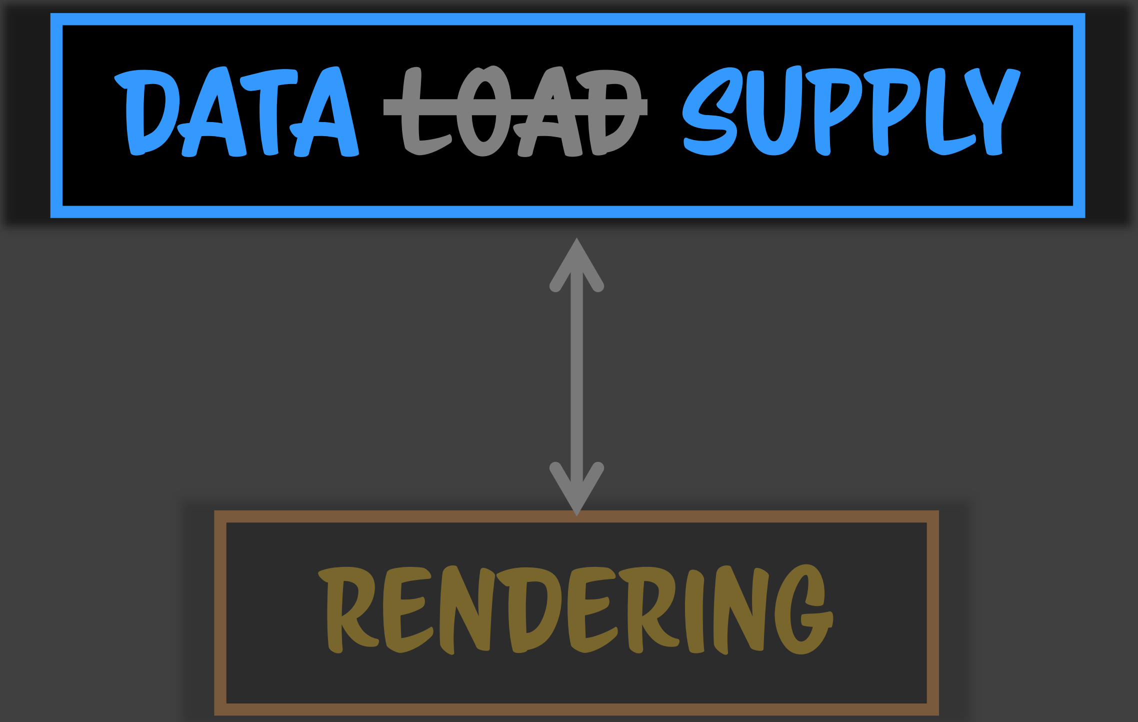
```
const loader = new Loader("75_1.json");
```



```
const loader = new Loader("75_1.json");
loader.load(json=>{
   const renderer = new Renderer();
   renderer.setData(json);
   renderer.render();
});
```

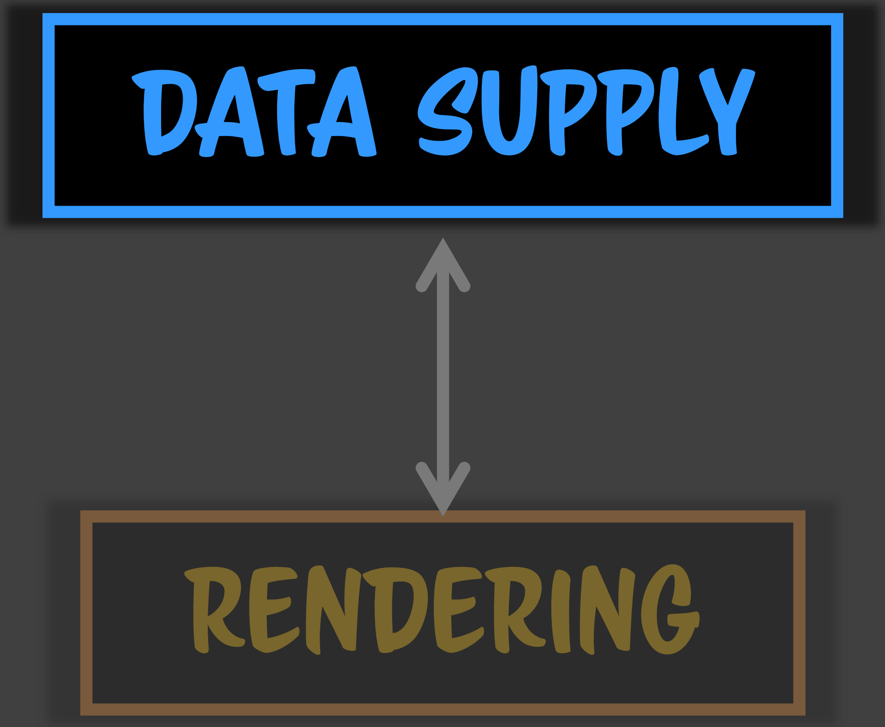


```
const loader = new Loader("75_1.json");
loader.load(json=>{
   const renderer = new Renderer();
   renderer.setData(json);
   renderer.render();
});
```



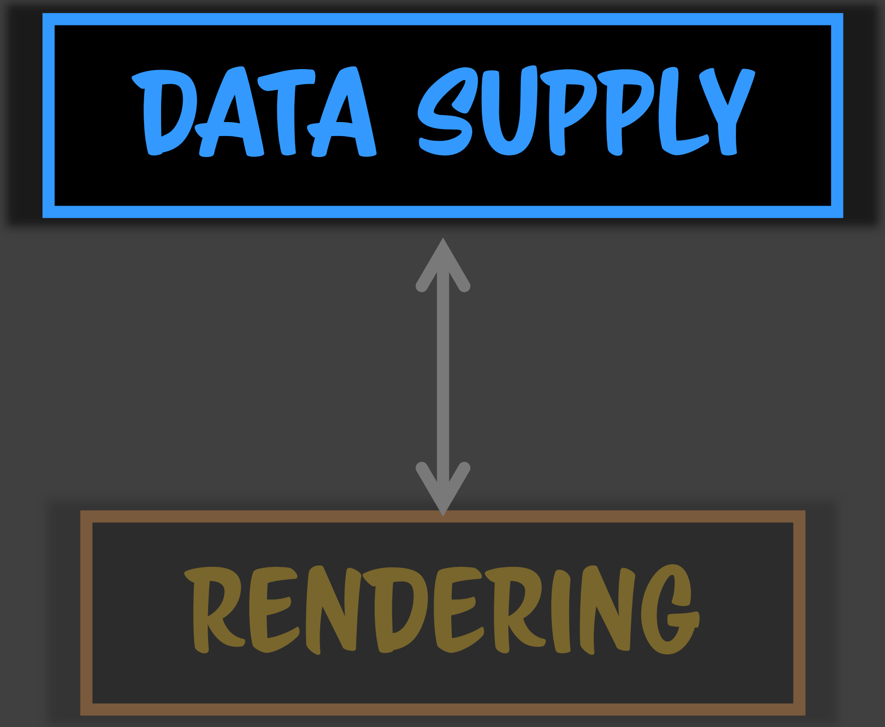
```
const loader = new Loader("75_1.json");
loader.load(json=>{
   const renderer = new Renderer();
   renderer.setData(json);
   renderer.render();
});
```

VALUE→OBJECT



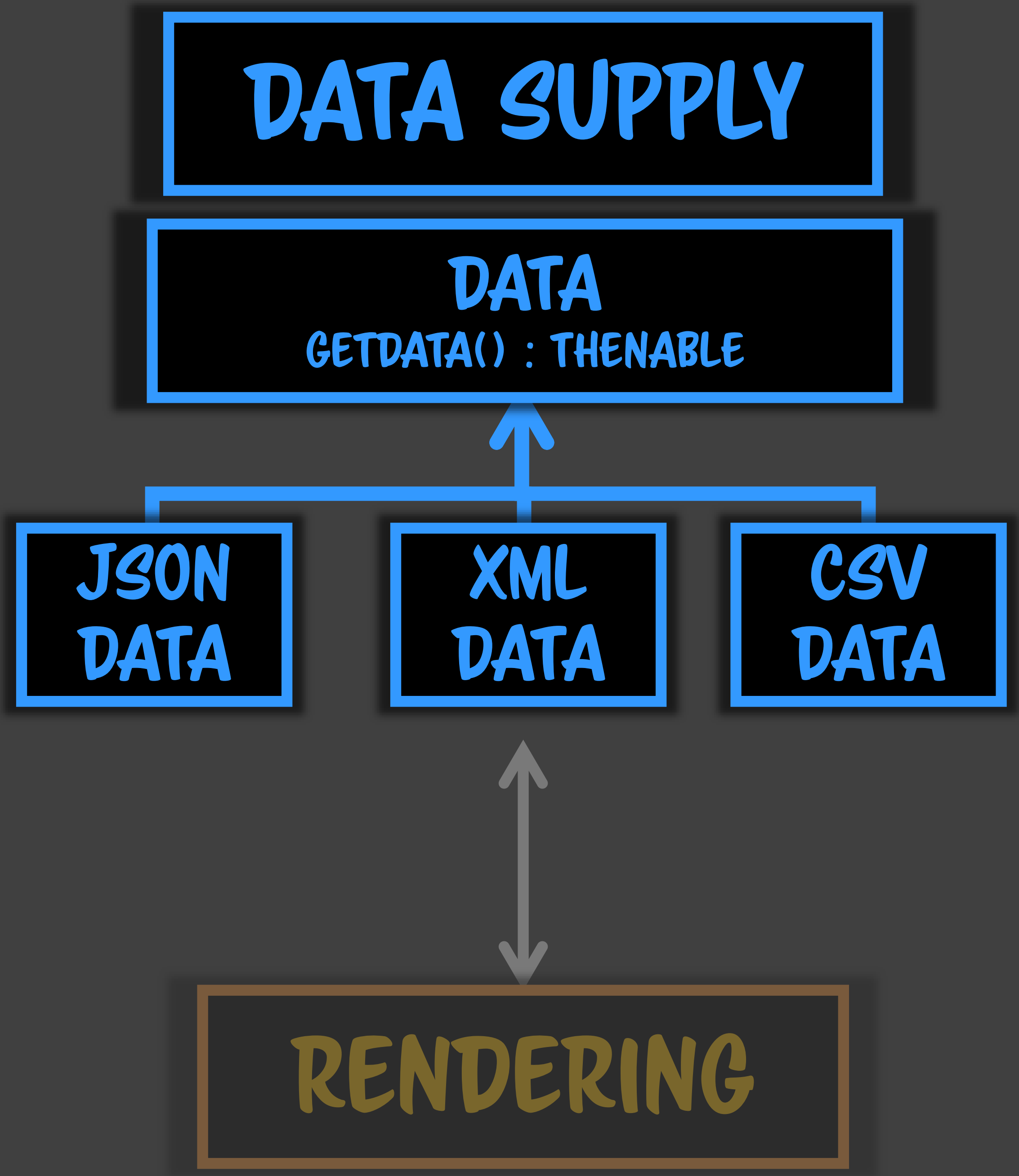
```
const loader = new Loader("75_1.json");
loader.load(json=>{
   const renderer = new Renderer();
   renderer.setData(json);
   renderer.render();
});
```

```
const data = new JsonData("75_1.json");
const renderer = new Renderer();
renderer.render(data);
```

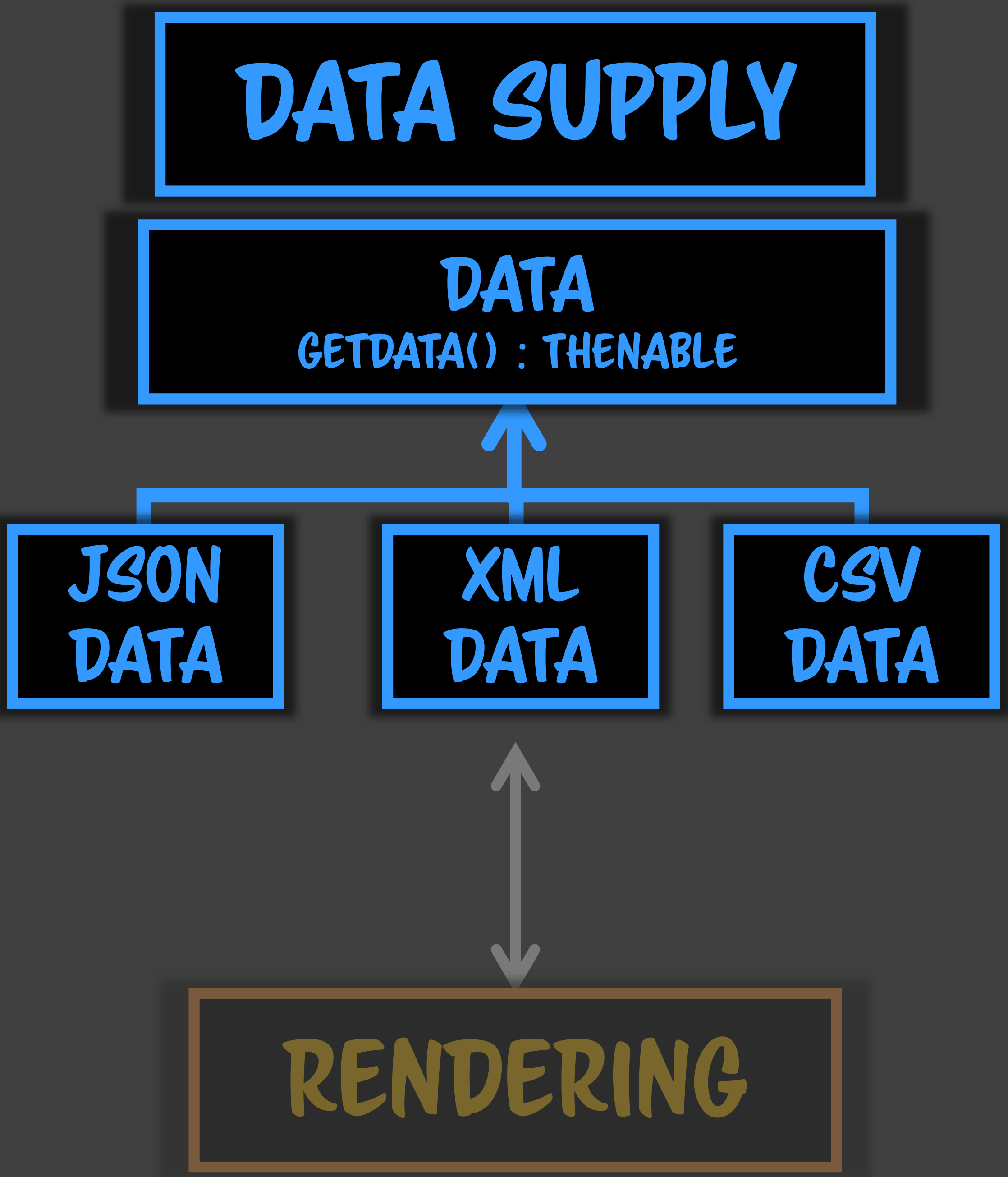


```
const loader = new Loader("75_1.json");
loader.load(json=>{
   const renderer = new Renderer();
   renderer.setData(json);
   renderer.render();
});
```

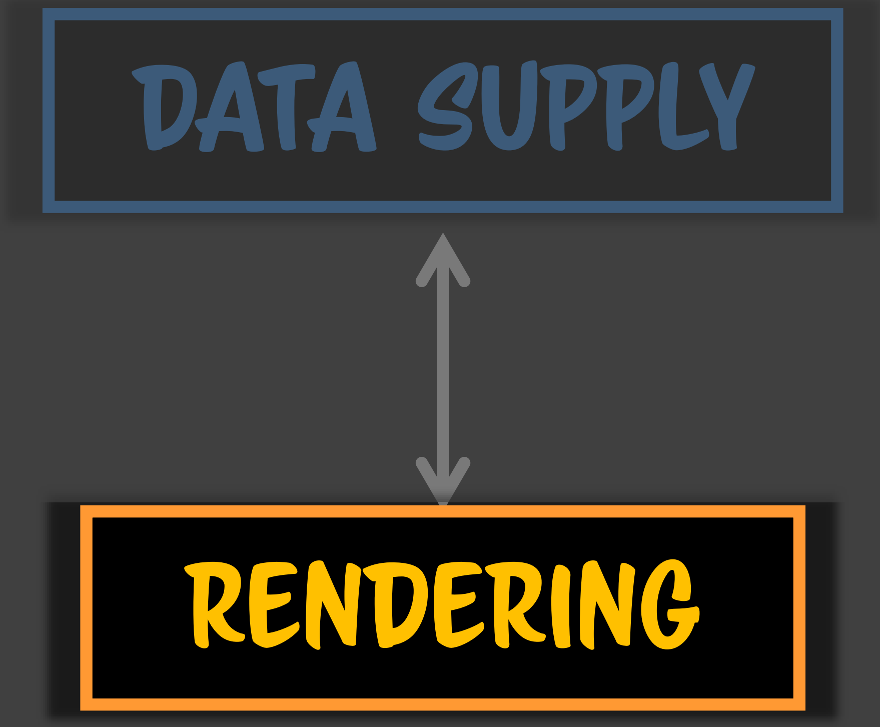
```
const data = new JsonData("75_1.json");
const renderer = new Renderer();
renderer.render(data);
```



```
const Data = class{
   async getData(){throw "getData must override";}
};


const JsonData = class extends Data{
   constructor(data){
      super();
      this._data = data;
   }
   async getData(){
      if(typeof this._data == 'string'){
         const response = await fetch(this._data);
         return await response.json();
      }else return this._data;
   }
};
```



```
const Data = class{
    async getData(){throw "getData must override";}
};

const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getData(){
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            return await response.json();
        }else return this._data;
    }
};

const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const json = await data.getData();
        console.log(json);
    }
}

const data = new JsonData("75_1.json");

const renderer = new Renderer();
renderer.render(data);
```



```
const JsonData = class extends Data{
   constructor(data){
      super();
      this._data = data;
   }
   async getData(){
      if(typeof this._data == 'string'){
         const response = await fetch(this._data);
         return await response.json();
      }else return this._data;
   }
};



const Renderer = class{
   constructor(){}
   async render(data){
      if(!(data instanceof Data)) throw "invalid data type";
      const json = await data.getData();
      console.log(json);
   }
}
```

```
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getData(){
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            return await response.json();
        }else return this._data;
    }
};
```

VALUE → OBJECT

```
const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const json = await data.getData();
        console.log(json);
    }
}
```

```
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getData(){
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            return await response.json();
        }else return this._data;
    }
};
```

VALUE → OBJECT

INFO
TITLE
HEADER
ITEMS

```
const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const json = await data.getData();
        console.log(json);
    }
}
```

```
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getl
        if(typ
            con

}
const Rendere
    constructo
    async rend
        if(!(d
        const json = await data.getData();
        console.log(json);
    }
}
```

INFO

TITLE
HEADER
ITEMS

```
const Info = class{
    constructor(json){
        const {title, header, items} = json;
        if(typeof title != 'string' || !title) throw "invalid title";
        if(!Array.isArray(header) || !header.length) throw "invalid header";
        if(!Array.isArray(items) || !items.length) throw "invalid items";
        this._private = {title, header, items};
    }
    get title(){return this._private.title;}
    get header(){return this._private.header;}
    get items(){return this._private.items;}
};
```

```
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getData(){
        let json;
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            json = await response.json();
        }else json = this._data;
        return new Info(json);
    }
};
```

```
const Info = class{
    constructor(json){
        const {title, header, items} = json;
        if(typeof title != 'string' || !title) throw "invalid title";
        if(!Array.isArray(header) || !header.length) throw "invalid header";
        if(!Array.isArray(items) || !items.length) throw "invalid items";
        this._private = {title, header, items};
    }
    get title(){return this._private.title;}
    get header(){return this._private.header;}
    get items(){return this._private.items;}
};
```

```
const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const info = await data.getData();
        console.log(info.title, info.header, info.items);
    }
}
```

```
const Data = class{
    async getData(){throw "getData must override";}
};
```

```
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async getData(){
        let json;
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            json = await response.json();
        }else json = this._data;
        return new Info(json);
    }
};


const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const info = await data.getData();
        console.log(info.title, info.header, info.items);
    }
}
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const JsonData = class extends Data{
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        super();
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    }
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        let json;
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            const response = await fetch(this._data);
            json = await response.json();
        }else json = this._data;
        return new Info(json);
    }
};


const Renderer = class{
    constructor(){}
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        const info = await data.getData();
        console.log(info.title, info.header, info.items);
    }
}
```
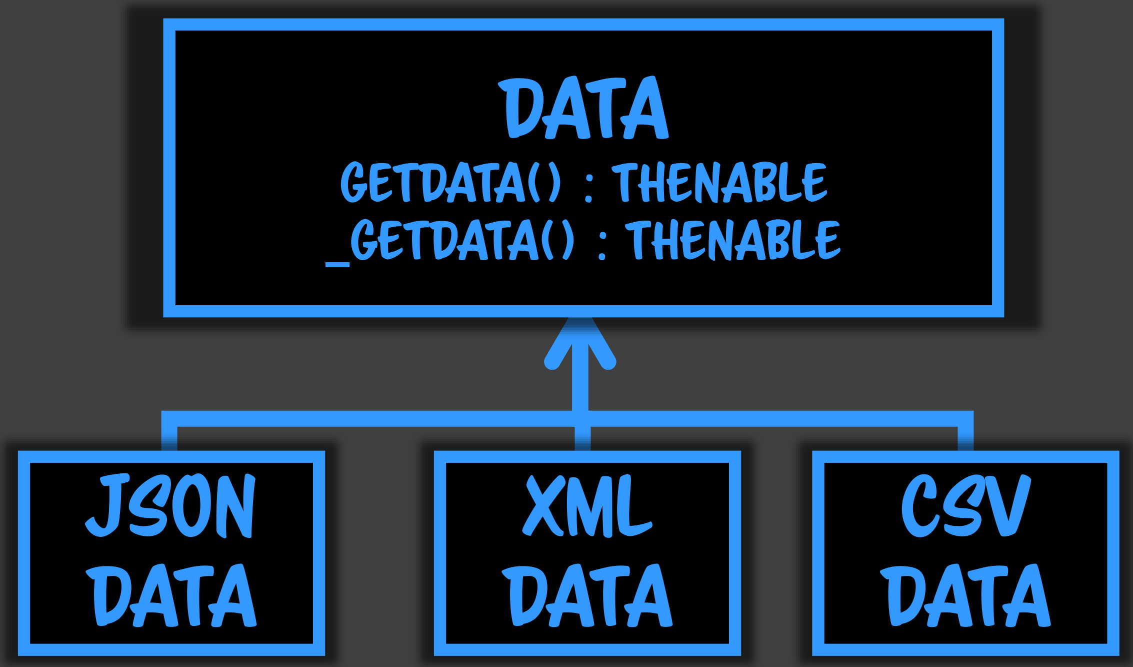
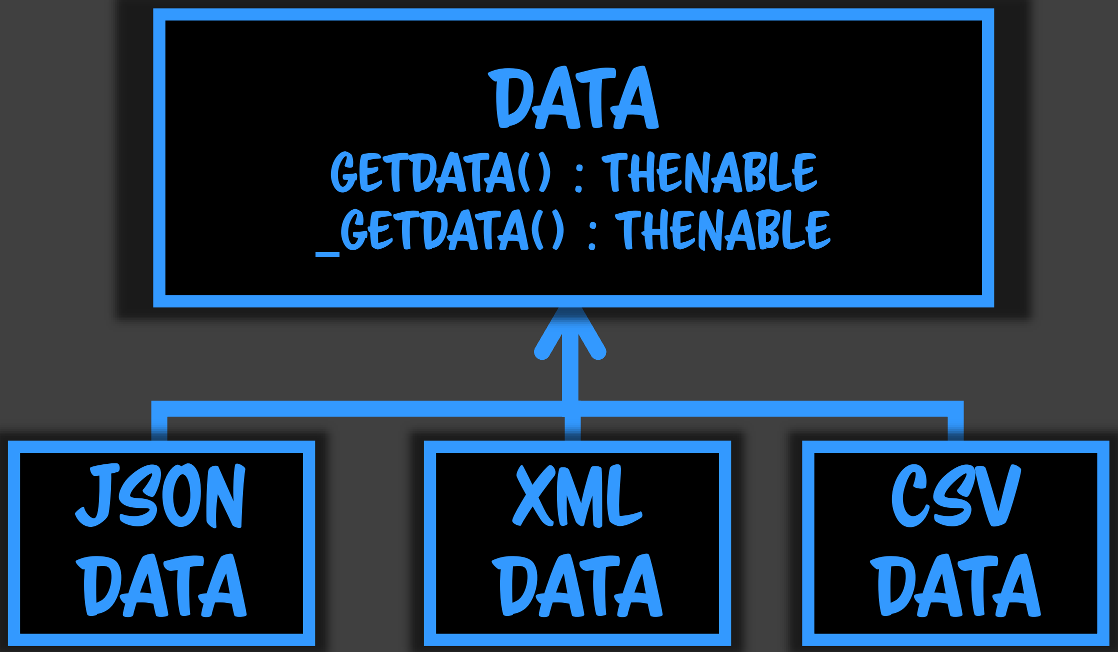



```
const Data = class{
    async getData(){
        const json = await this._getData();
        return new Info(json);
    }
    async _getData(){
        throw "_getData must overrided";
    }
};
const JsonData = class extends Data{
    constructor(data){
        super();
        this._data = data;
    }
    async _getData(){
        let json;
        if(typeof this._data == 'string'){
            const response = await fetch(this._data);
            return await response.json();
        }else return this._data;
    }
};
```



```
const Data = class{
     async getData(){
          const json = await this._getData();
          return new Info(json);
     }
     async _getData(){
          throw "_getData must overrided";
     }
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     }
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          let json;
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               const response = await fetch(this._data);
               return await response.json();
          }else return this._data;
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const Renderer = class{
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        console.log(info.title, info.header, info.items);
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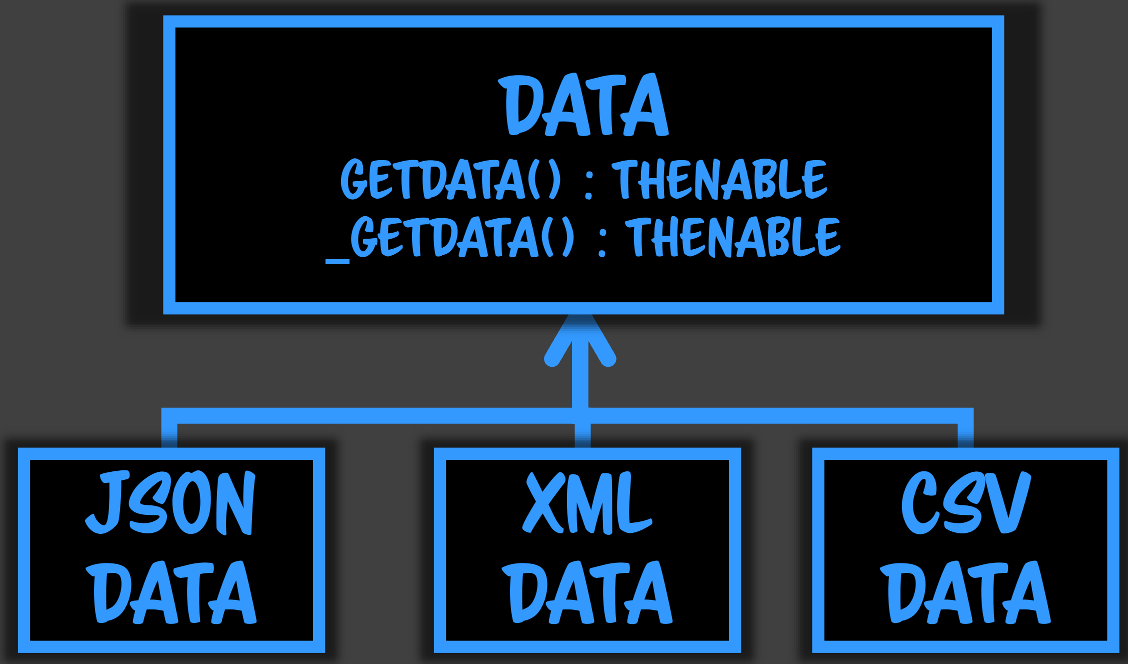
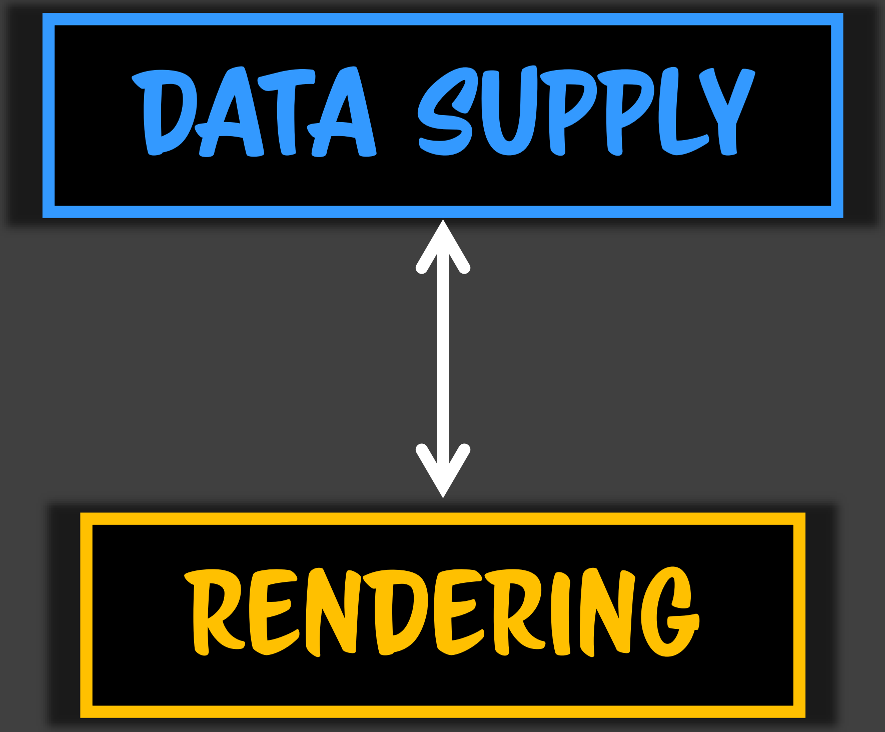
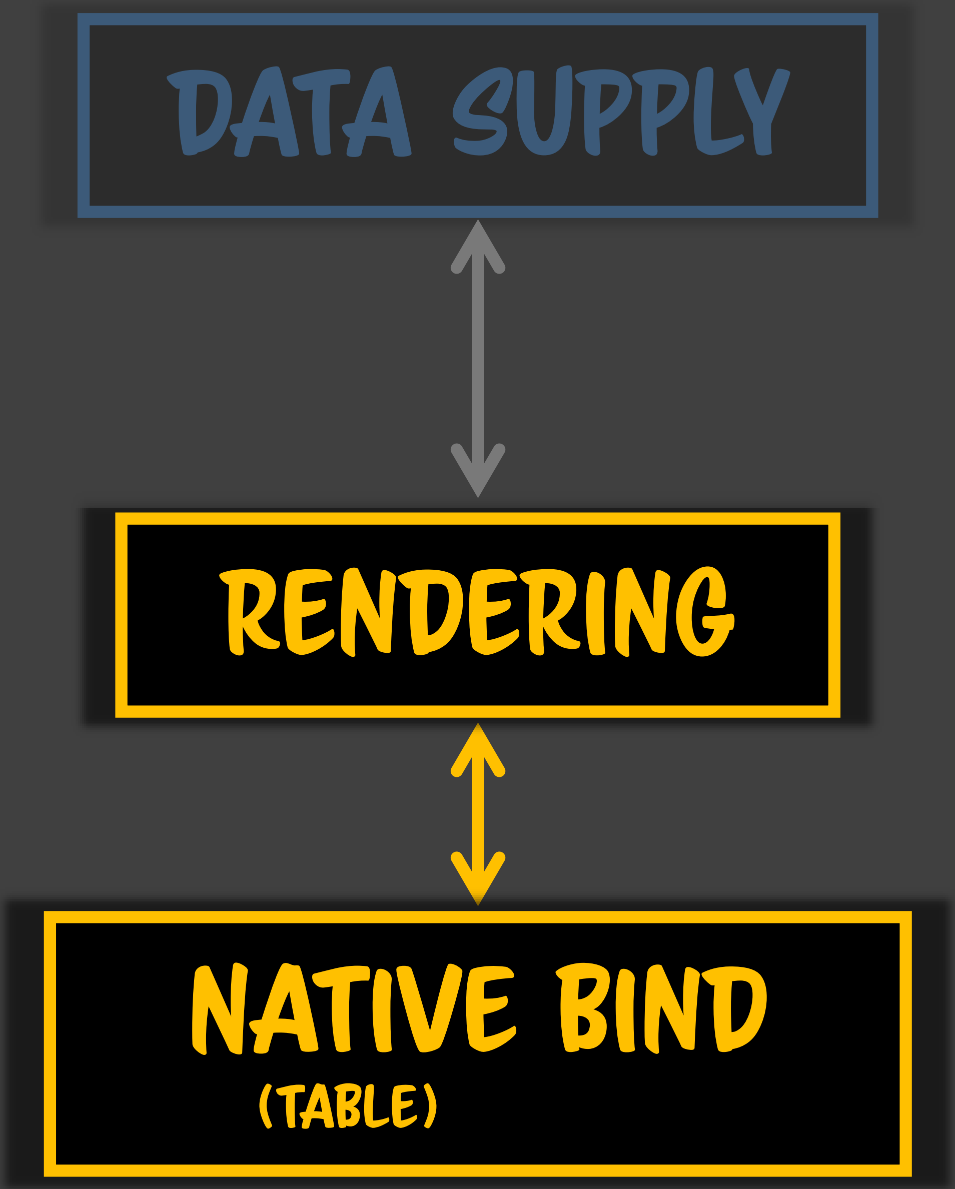
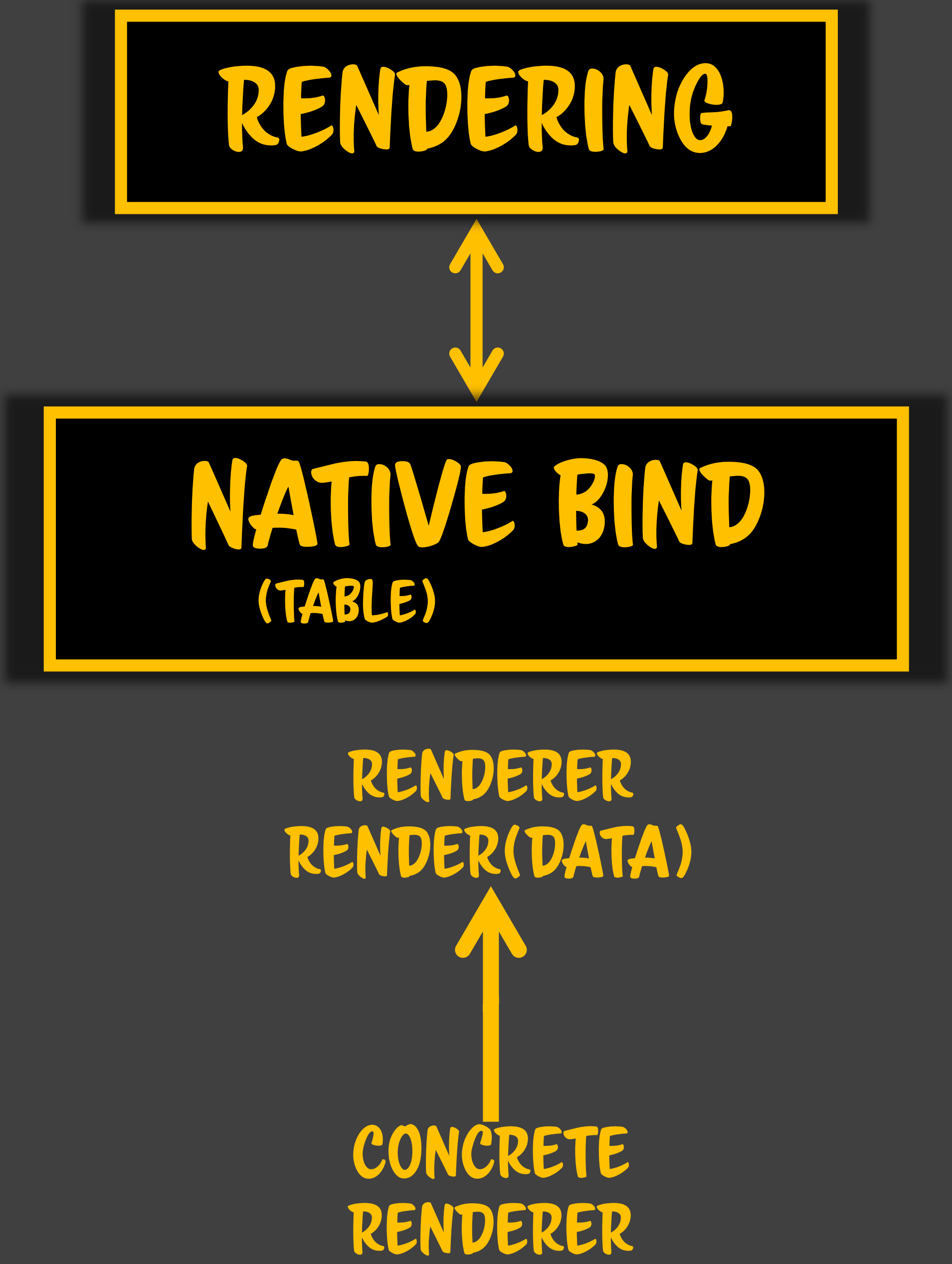
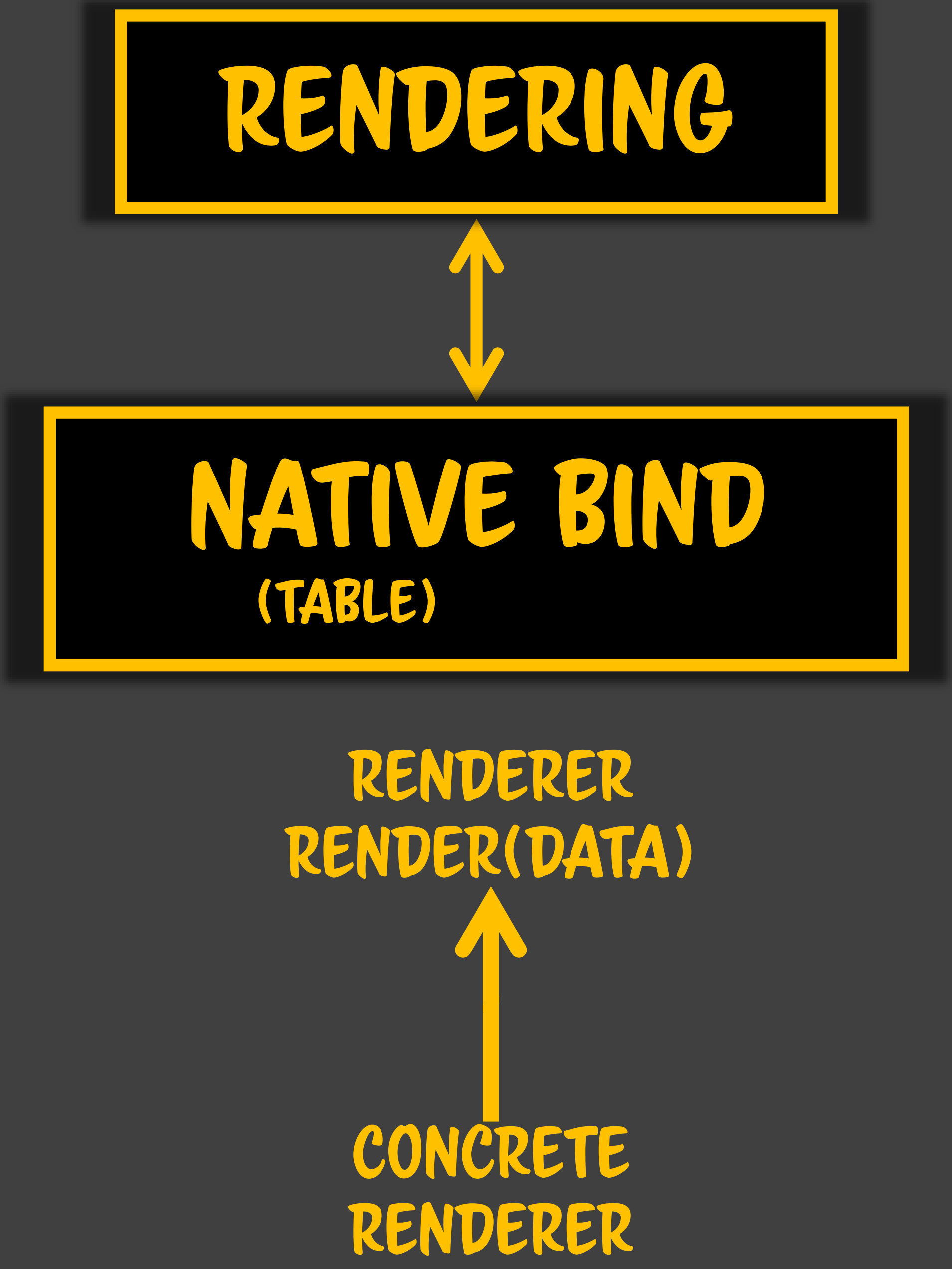



DATA SUPPLY
RENDERING


DATA SUPPLY
RENDERING
NATIVE BIND
(TABLE)


RENDERING
NATIVE BIND
(TABLE)
RENDERER
RENDER(DATA)
CONCRETE
RENDERER

```
const Renderer = class{
    async render(data){
        if(!(data instanceof Data)) throw "invalid data type";
        this._info = await data.getData();
        this._render();
    }
    _render(){
        throw "_render must overrided";
    }
}
```



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        this._render();
    }
    _render(){
        throw "_render must overrided";
    }
}


const TableRenderer = class extends Renderer{
    constructor(parent){}
    _render(){
    }
}
```

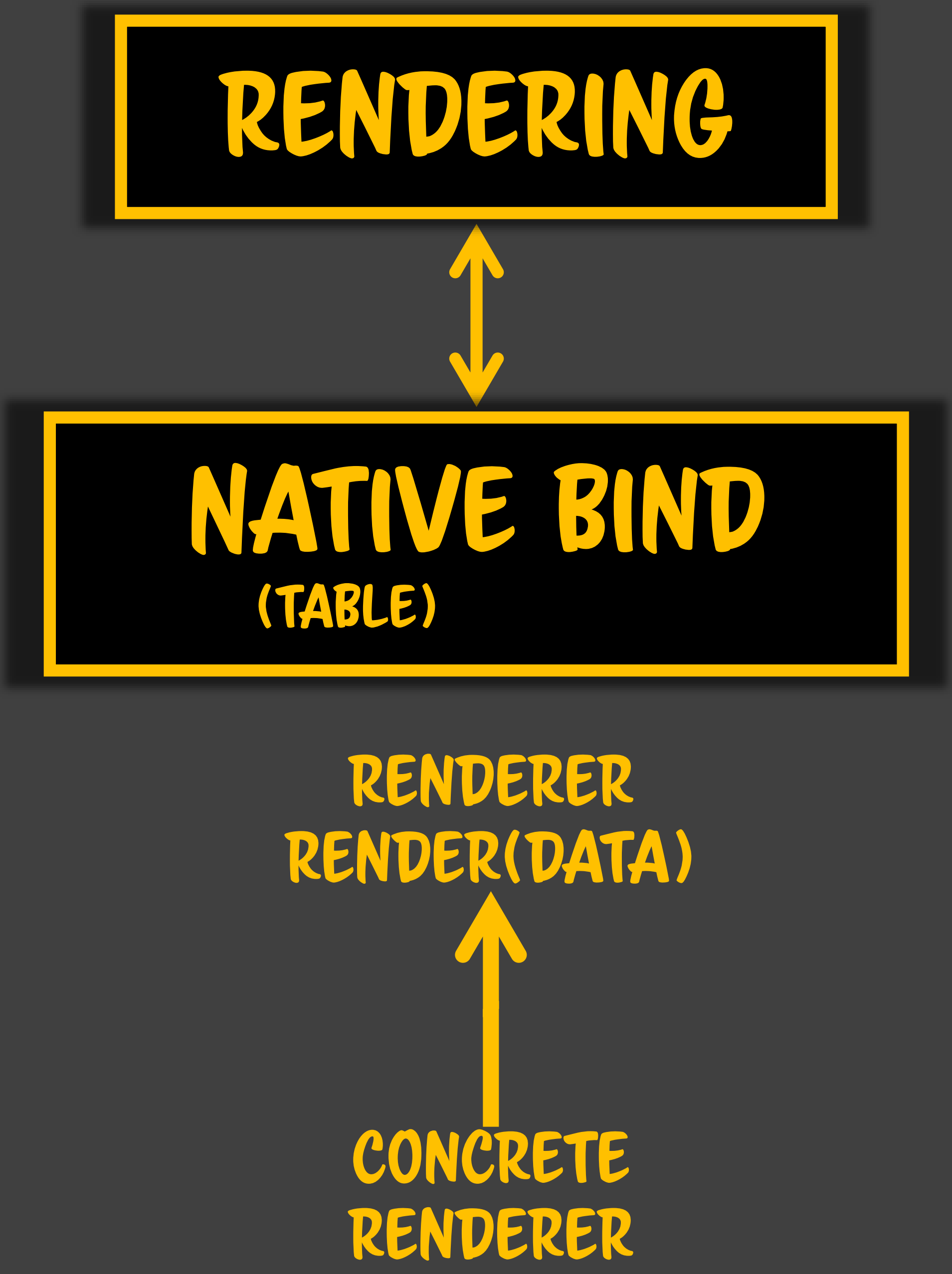

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const Renderer = class{
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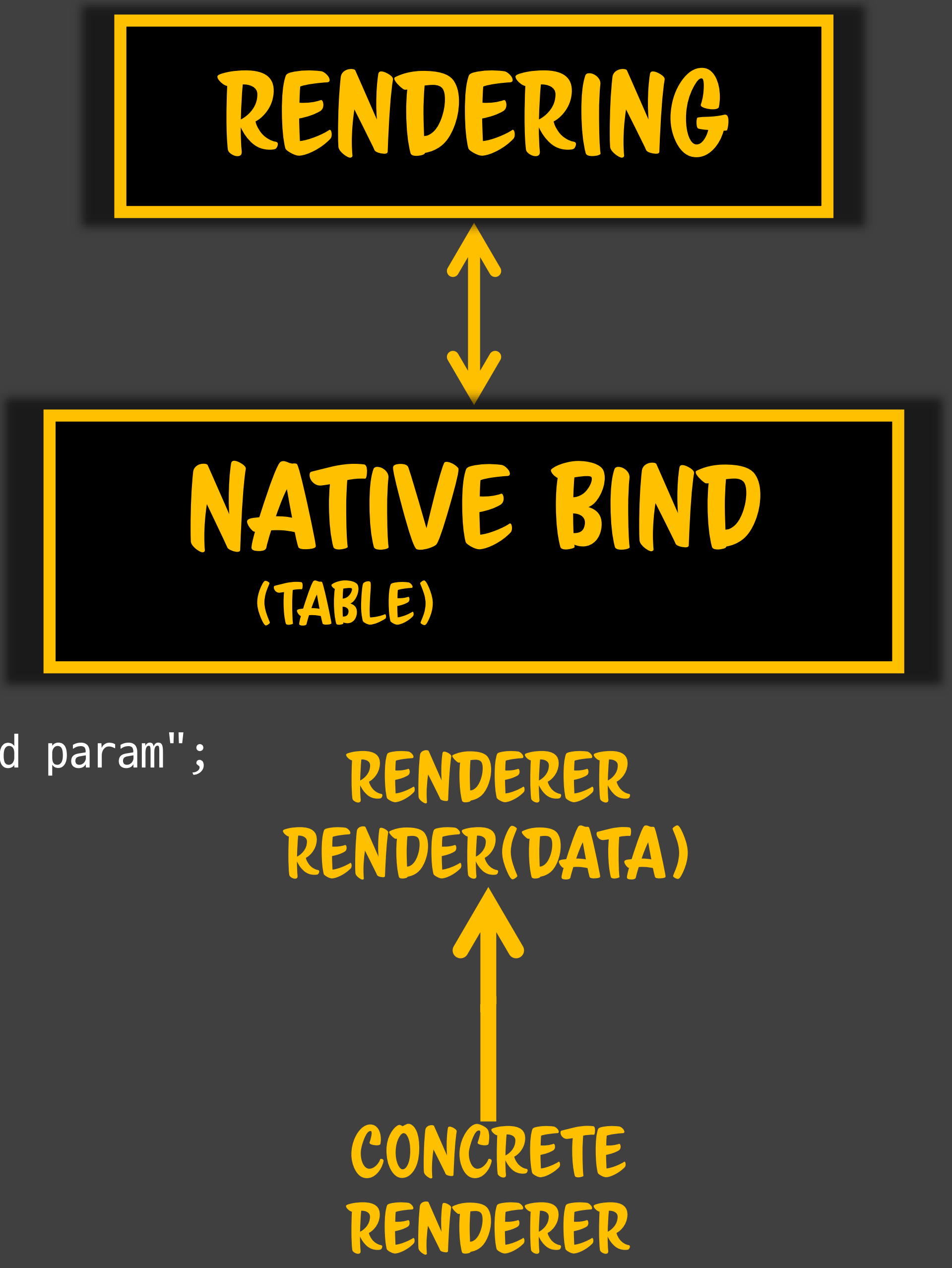

```
const TableRenderer = class extends Renderer{
   constructor(parent){
      if(typeof parent != 'string' || !parent) throw "invalid param";
      super();
      this._parent = parent;
   }
   _render(){
      const parent = document.querySelector(this._parent);
      if(!parent) throw "invaild parent";
      parent.innerHTML = "";
      const [title, header, items] = this._info;
      const [table, caption, thead] = "table,caption,thead".split(",").map(v=>doc.createEl (v));
      caption.innerHTML = title;
      [
         caption,
         header.reduce((_, v)=>(thead.appendChild(document.createElement("th")).innerHTML = v, thead)),
         ...items.map(item=>item.reduce(
            (tr, v)=>(tr.appendChild(document.createElement("td")).innerHTML = v, tr),
            document.createElement("tr")
         ))
      ].forEach(el=>table.appendChild(el));
      parent.appendChild(table);
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         ))
      ].forEach(el=>table.appendChild(el));
      parent.appendChild(table);
   }
}
```

PRACTICE #1

지금까지 전개한 객체협력모델에서는 여전히 문제가 남아있다.
Info는 Data와 Renderer 사이에 교환을 위한 프로토콜인데
Renderer의 자식인 TableRenderer도 Info에 의존적인 상태다.
이를 개선하라.