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Labb2 Programspråksteori

In this laboration a program was created in Javascript to function like the Java iterator. This iterator is supposed to have the functionality of checking if an array has a next value and a function to fetch that value whilst iterating.

In the second function we see that prototype is used to inherit the properties of Array whilst then creating a new functionlity .iterator. The .iterator function returns an object of Iterator. Iterator consists of two functionalities next() and hasNext(). These functions use the variables index and length which are the position in the array and the size of the array. The hasNext() function returns a bool and will be true as long as the index has not reached the length. The next() function simply returns the content at the index position of the array whilst iterating.

```
function Iterator(arr){
    this.index = 0;
    this.length = arr.length;
    this.hasNext = function(){
        if(this.index < this.length){
            return true;
        }
        else{
            return false;
        }
    }
    this.next = function(){
        return arr[this.index++];
    }
}

Array.prototype.iterator = function(){
    return new Iterator(this);
}

arr = [11, 22, 33, 44, 55];
f = arr.iterator();

while(f.hasNext()){
    console.log(f.next());
}
```

Discuss your thoughts on the prototype mechanism, in particular in regards to the traditional OO design. Use this knowledge to expand on the evaluation of javascript as a language from the first presentation session, include this in your report.

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Javascript is a prototype based object oriented language. This means it doesn't have classes rather it define behaviors using constructor functions and then reuse it using prototype.

Javascript can build actual objects from a constructor function and has almost any feature any object could have. These include Constructor, Methods Properties and Inctances.

Any object has a prototype, including functions. The prototype is a way of adding object members to any newly created instance of the whole object.

Javascript used to lack Polymorphism, Inheritance and Encapsulation before 2015 which kept it from being defined as object oriented, but with after the ES2015 update Polymorphism was possible and in the ES2020 update access modifiers were proposed. The language is constantly updating and becoming more and more like object oriented languages.

Coding this program has been a fun way to learn what the possibilities of JS are, even though there aren't any classes or object oriented functionlity already created.

Coding this program is a good way to see how easy and efficient using classes are in C++ and other languages.