

*Webbteknik 3*

# Objektbaserad programmering

Rune Körnefors

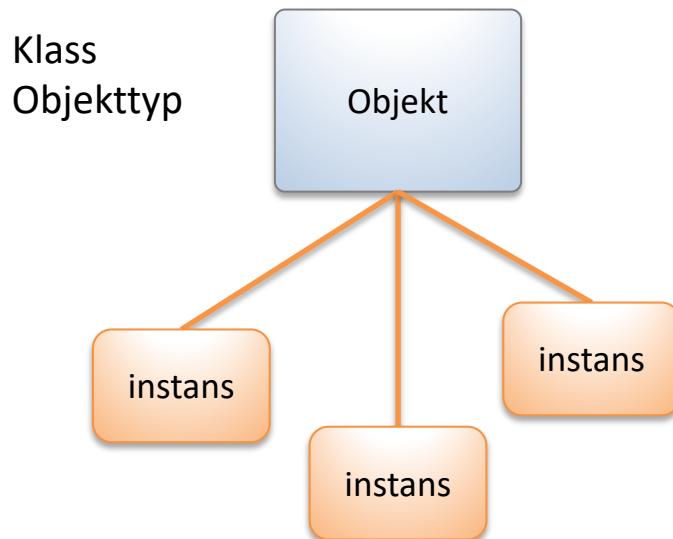
Medieteknik

**Linnéuniversitetet** 

Från föreläsning F3a i 1ME322 Webbt teknik 2

## Objekt

Gruppering av egenskaper (variabler)  
och metoder (funktioner)



```
instans = new Object();
```

```
instans.egenskap = värde;
```

```
d = new Date();
```

```
x = new Date(2016,1,9);
```

```
s1 = new String("abc");
```

```
s2 = "abc";
```

```
a1 = new Array();
```

```
a2 = ["x","y","z"];
```

```
count = a2.length;
```

```
r = Math.random();
```

```

```

```
<a href="somewhere.htm" target="_blank">Gå dit</a>
```

```
p {color:#DE4; font-size:18px;}
```

```
s1 = "en text";  
n = s1.length;
```

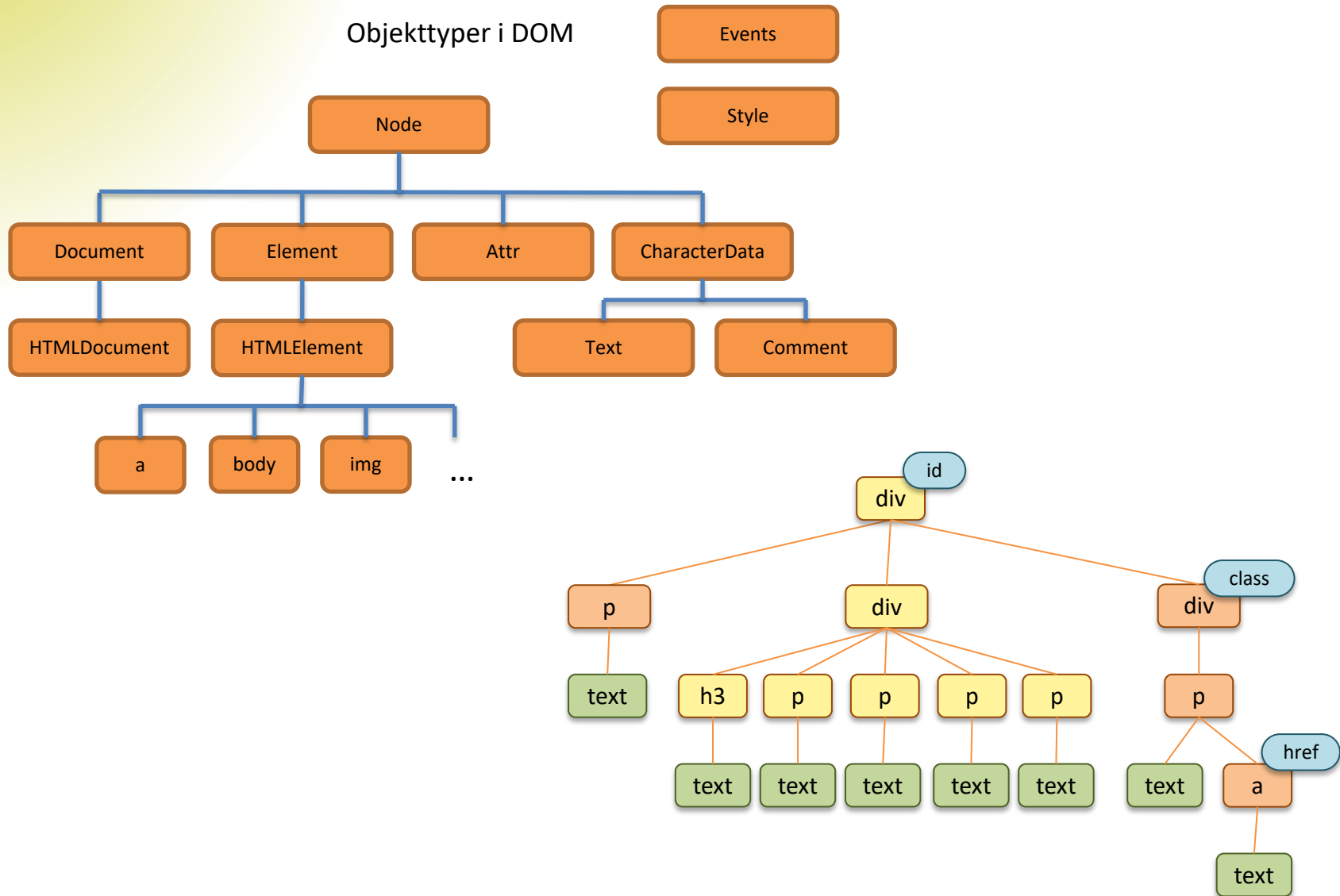
```
d = new Date();  
y = d.getFullYear();
```

```
elems = document.getElementById("abc").getElementsByTagName("p");  
elems[i].innerHTML = "en text";  
elems[i].style.color = "#3C9";
```

- course\*
  - code
  - title
  - credits

```
<course>  
  <code>1ME323</code>  
  <title>Webbteknik 3</title>  
  <credits>7,5</ credits >  
</course>  
<course>  
  ...  
</course>  
...
```

Från föreläsning F3



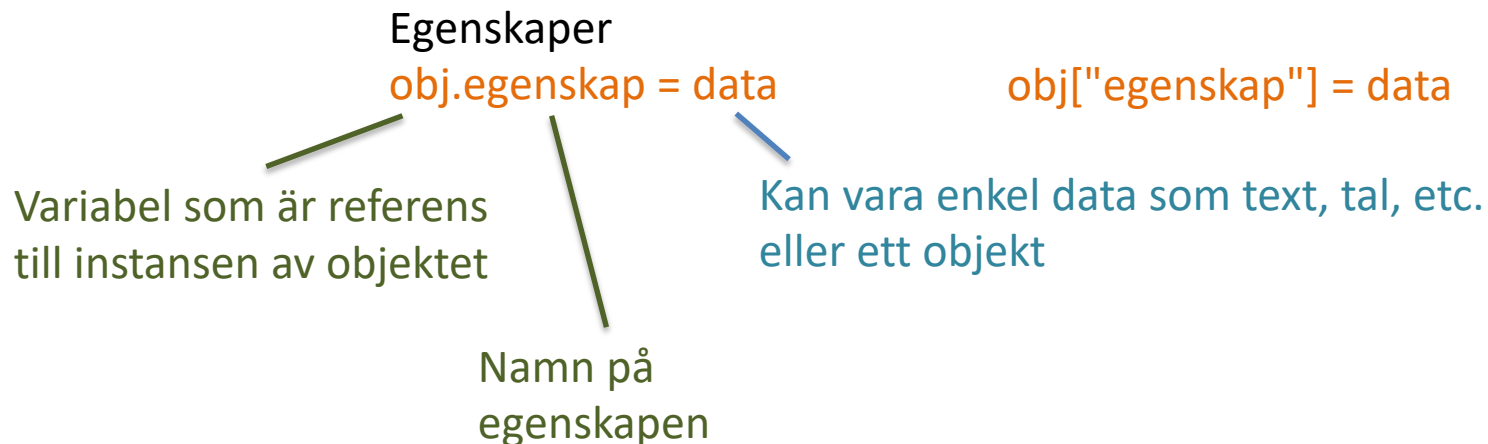
{egenskap1:data, egenskap2:data, ...}

Skapa ett generellt objekt

```
obj = new Object();  
obj.e1 = x;  
obj.e2 = y;  
obj.e3 = z;
```

```
obj= {};  
obj.e1 = x;  
obj.e2 = y;  
obj.e3 = z;
```

```
obj= {e1:x,e2:y,e3:z};
```



Exempel:

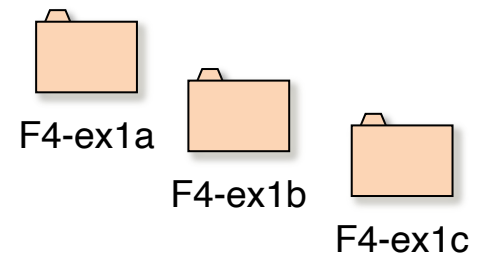
- a. Tre olika variabler med objekt
- b. Array av objekt
- c. Objekt med underobjekt

## Struktur

course  
  code  
  title  
  credits

## Jämför med XML

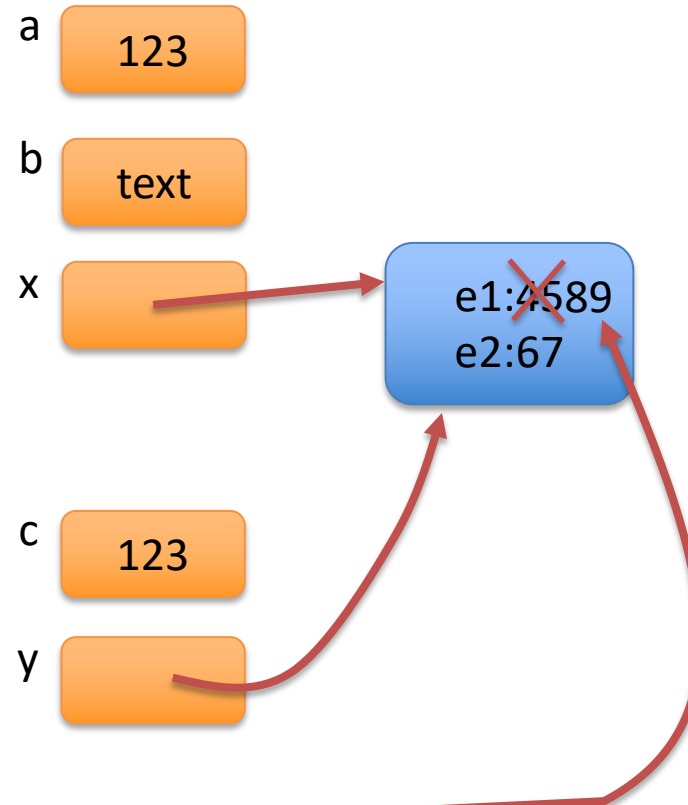
```
<course>  
  <code>...</code>  
  <title>...</title>  
  <credits>...</credits>  
</course>
```



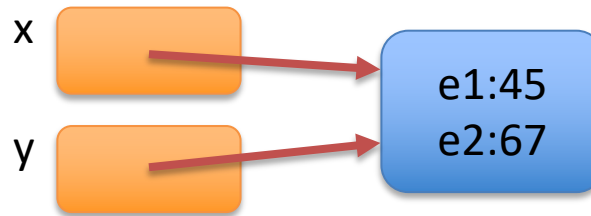
```
a = 123;
b = "text";
x = {
  e1:45,
  e2:67
};
```

```
c = a;
y = x;
```

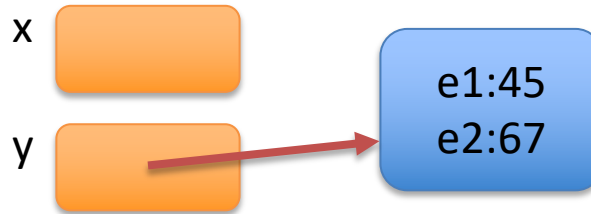
```
y.e1 = 89;
// Även x.e1 blir 89;
```



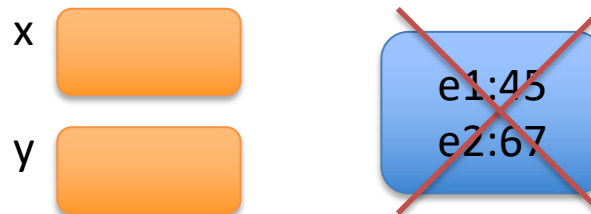
```
x = {
  e1:45,
  e2:67
};
y = x;
```



```
x = null;
```



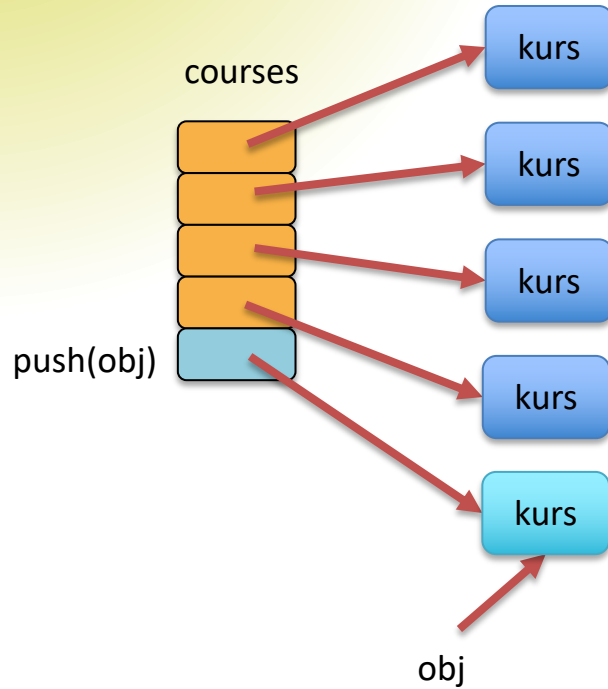
```
y = null;
```



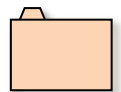
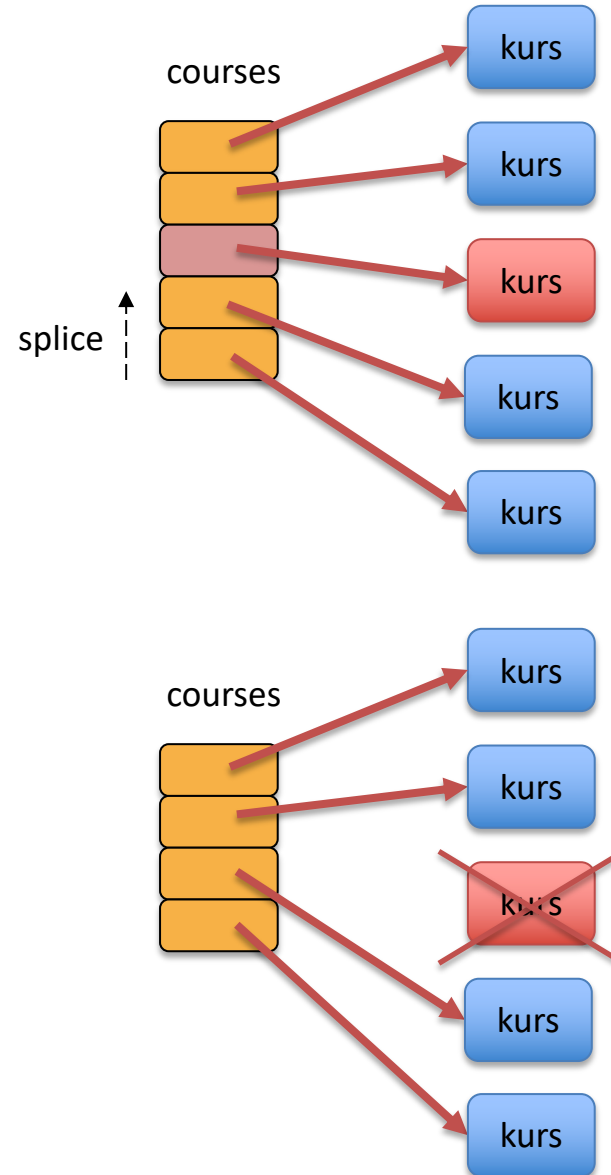
Automatisk "garbage collection"  
då det inte längre finns någon  
referens till objektet.



addCourse()



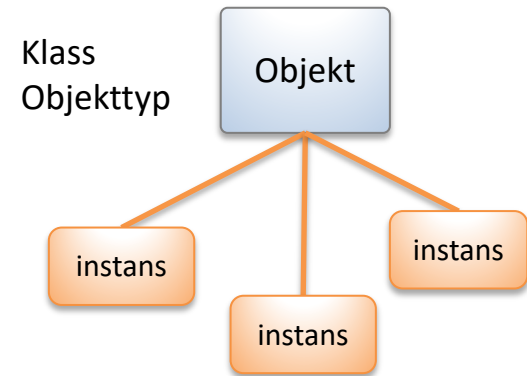
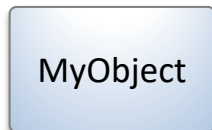
deleteCourse()



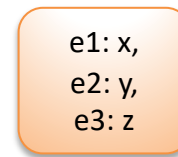
## Constructor function

- Används för att skapa ett nytt objekt
- "Mall" för objektet

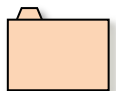
```
// constructor function  
function MyObject(d1,d2,d3) {  
    this.e1 = d1;  
    this.e2 = d2;  
    this.e3 = d3;  
}
```



```
// skapa instans av objektet  
obj = new MyObject(x,y,z);
```

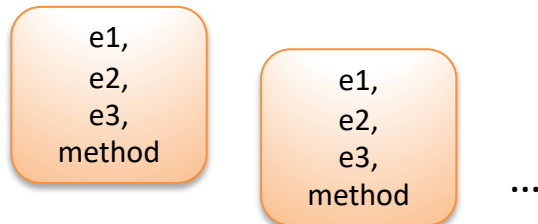


instans av MyObject



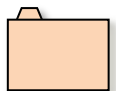
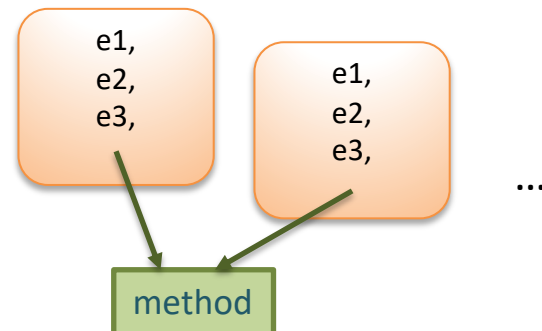
F4-ex3a

```
// constructor function
function MyObject(d1,d2,d3) {
  this.e1 = d1;
  this.e2 = d2;
  this.e3 = d3;
  this.method = function() {
    ...
  }
}
```



```
// constructor function
function MyObject(d1,d2,d3) {
  this.e1 = d1;
  this.e2 = d2;
  this.e3 = d3;
}
```

```
MyObject.prototype.method = function() {
  ...
}
```



## I objekt

```
MyObject.prototype.add = function() {
  var sum = this.e1 + this.e2;
  return sum;
}
```

*Referens till objektet*

## I händelsehanterare

```
myBtn.addEventListener("click",hello);

function hello() {
  var myName = this.value;
  alert("You clicked " + myName);
}
```

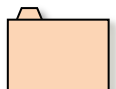
*Referens till HTML-elementet*

## Problem med this

```
myBtn.addEventListener("click", MyObject.add);
```

```
MyObject.prototype.add = function() {
  var sum = this.e1 + this.e2;
  return sum;
}
```

*this är nu en referens till  
HTML-elementet för knappen,  
ej till objektet MyObject*



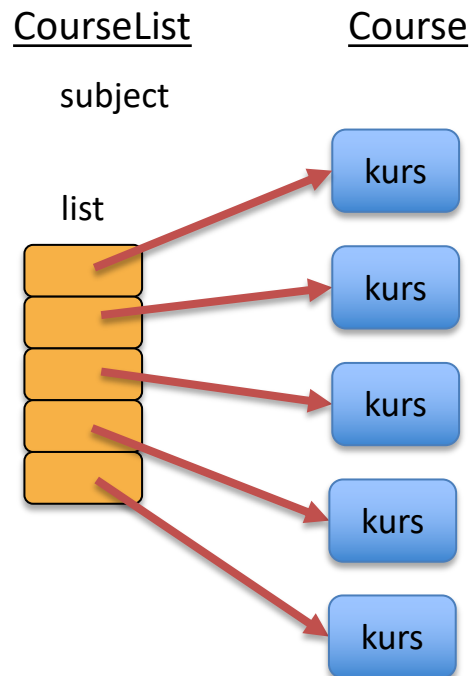
F4-ex4

## Spara kurslista

- Objekten måste göras om till textsträngar.
- Data (värdena i egenskaperna) sparas.
- Metoderna sparas ej.

## Läs in kurslista

- Läs in data.
- Återskapa objekten och strukturen.



## CourseList Egenskaper

- `subject`
- `list`

## Metoder

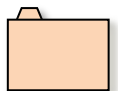
- `write`
- `add`
- `delete`
- `save`
- `load`

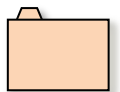
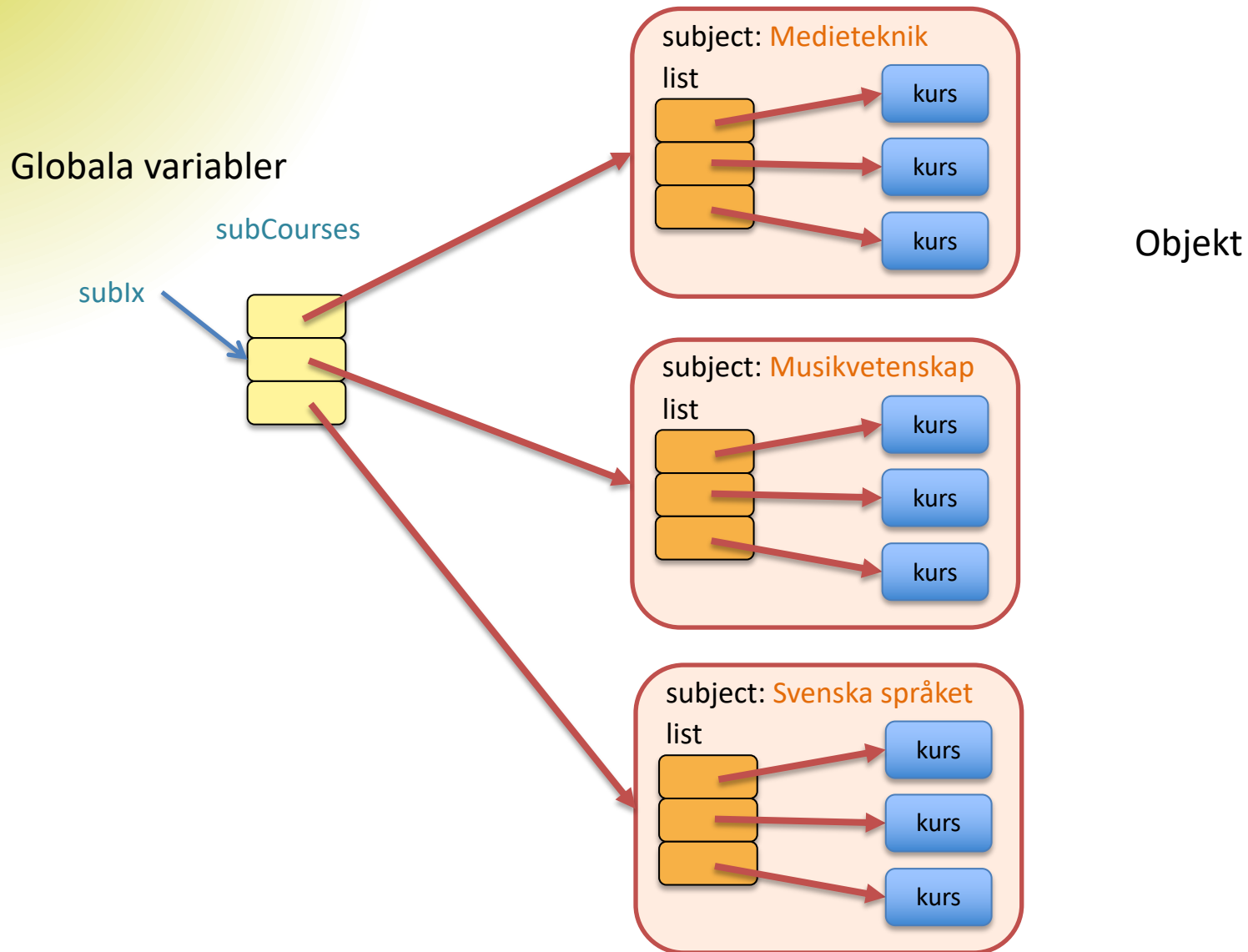
## Course Egenskaper

- `code`
- `title`
  - `swedish`
  - `english`
- `credits`

## Metoder

- `write`
- `toString`





```
class Objekt {  
  constructor(x,y,z) {  
    this.egenskap1 = x;  
    this.egenskap2 = x;  
    ...  
  }  
  metod1() {  
    ...  
  }  
  ...  
}
```

Constructor-funktionen och övriga metoder grupperas.

Nyckelordet prototype behövs inte.

I övrigt skrivs koden som i tidigare exempel.

Kom i ES6, EcmaScript2015

Ännu ej fullt ut implementerat i alla webbläsare:  
<https://caniuse.com/?search=javascript%20class>

