Question 1: Answer

```javascript
let student = {
    firstName: "",
    lastName: "",
    // grades : [],

    inputNewGrade: function (newGrade) {

        if (typeof this.grades == 'object') {
            //do something
            this.grades.push(newGrade);
        } else {

            this.grades = [];
            this.grades.push(newGrade)

        }
    },
    computeAverageGrade: function () {
        return this.grades.reduce(function (a, b) {
            return a + b;
        }, 0) / this.grades.length;
    }
}

let student1 = Object.create(student);
student1.inputNewGrade(3.2);
student1.inputNewGrade(3.5);
student1.inputNewGrade(3.3);
student1.firstName = "asad";


let student2 = Object.create(student);
student2.inputNewGrade(3.9);
student2.inputNewGrade(3.4);
student2.inputNewGrade(3.3);
student2.inputNewGrade(3.3);
student2.firstName = "Naveed";

let studentArray = [student1, student2];

studentArray.forEach(student => {
    // studentArray[0];
    console.log(student.computeAverageGrade());
});
```
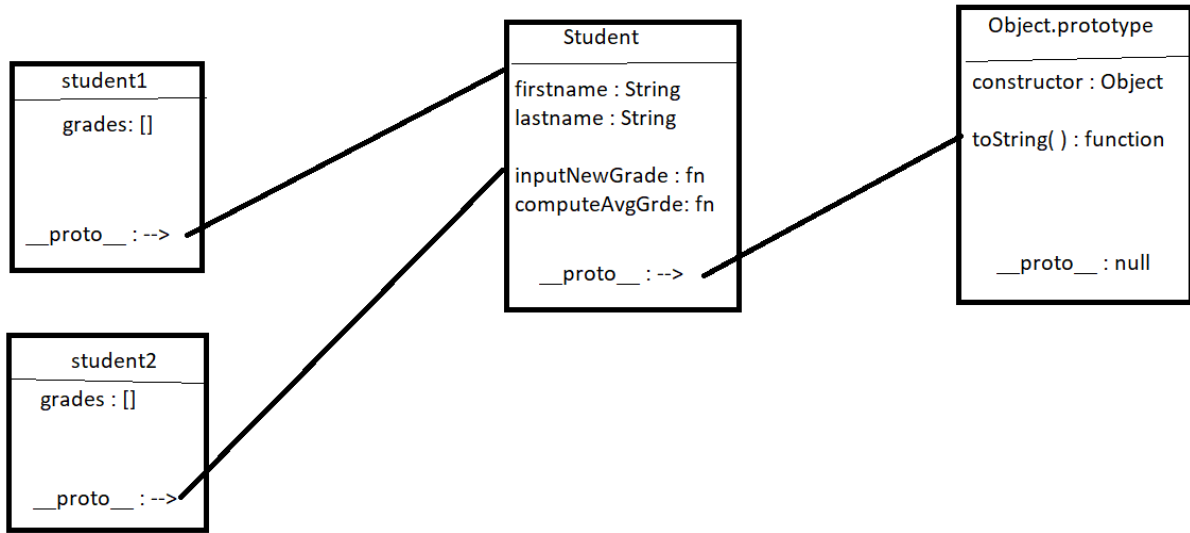
Diagram:

```
                              ┌──────────────────────────┐        ┌──────────────────────────┐
                              │         Student          │        │     Object.prototype     │
                              ├──────────────────────────┤        ├──────────────────────────┤
   ┌───────────────────┐      │ firstname : String       │        │ constructor : Object     │
   │      student1     │      │ lastname : String        │        │                          │
   ├───────────────────┤      │                          │        │ toString( ) : function   │
   │ grades: []        │      │ inputNewGrade : fn        │        │                          │
   │                   │      │ computeAvgGrde: fn        │        │                          │
   │                   │      │                          │        │                          │
   │ __proto__  : -->  │      │   __proto__  : -->        │        │   __proto__  : null      │
   └───────────────────┘      └──────────────────────────┘        └──────────────────────────┘

   ┌───────────────────┐
   │      student2     │
   ├───────────────────┤
   │ grades : []       │
   │                   │
   │                   │
   │ __proto__  : -->  │
   └───────────────────┘
```

Question 2: Answer

```javascript
function StudentFunctionConstructor() {
    this.firstName = "",
    this.lastName = ""

        // this.computeAverageGrade =
}

StudentFunctionConstructor.prototype.inputNewGrade = function (newGrade) {

        if (typeof this.grades == 'object') {
            //do something
            this.grades.push(newGrade);
        } else {

            this.grades = [];
            this.grades.push(newGrade)

        }
}

StudentFunctionConstructor.prototype.computeAverageGrade = function () {
    return this.grades.reduce(function (a, b) {
        return a + b;
    }, 0) / this.grades.length;
}

let studentCons1 = new StudentFunctionConstructor();
studentCons1.inputNewGrade(3.2);
studentCons1.inputNewGrade(3.5);


let studentCons2 = new StudentFunctionConstructor();
studentCons2.inputNewGrade(3.6);
studentCons2.inputNewGrade(3.2);


let studentConsArray = [studentCons1, studentCons2];

studentConsArray.forEach(student => {
    console.log(student.computeAverageGrade());
})
```
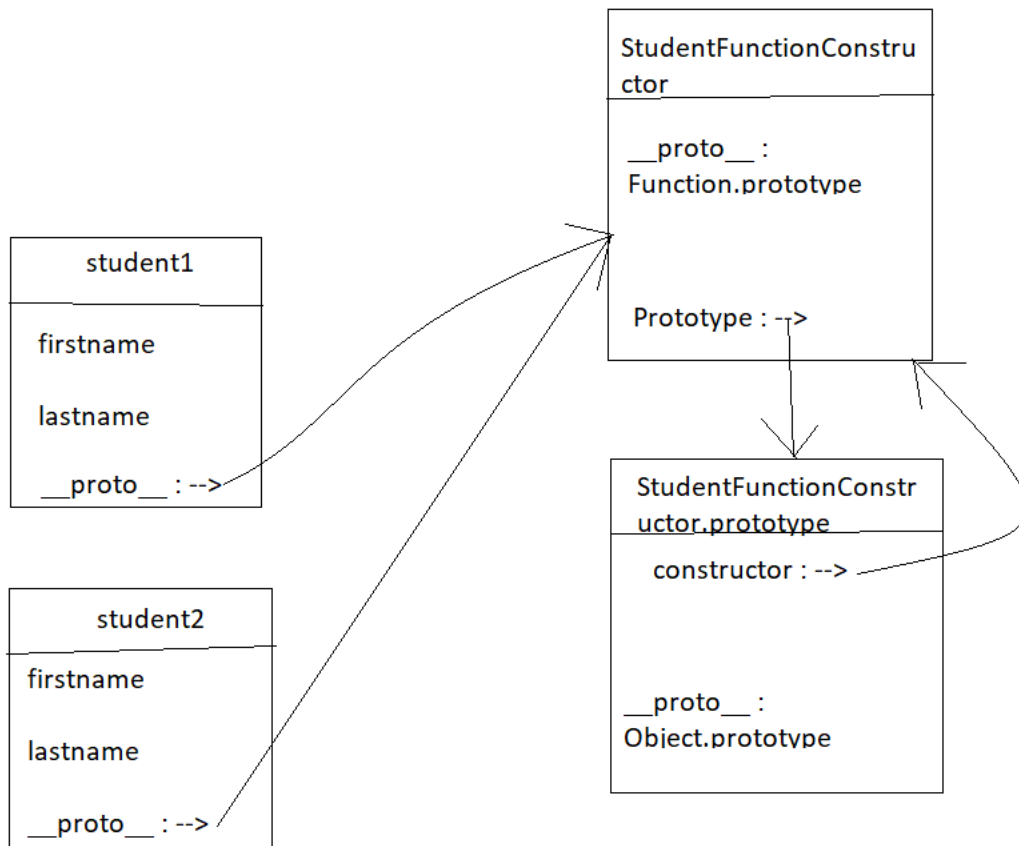
Diagram:

StudentFunctionConstructor

__proto__ :
Function.prototype

Prototype : -->

student1

firstname

lastname

__proto__ : -->

student2

firstname

lastname

__proto__ : -->

StudentFunctionConstructor.prototype

constructor : -->

__proto__ :
Object.prototype

Question 3: Answer

```javascript
Array.prototype.customSort = function () {
    let array = this;


    for (let i = 0; i < array.length; i++) {

        for (let j = i + 1; j < array.length; j++) {
            if (array[i] > array[j]) {
                temp = array[i];
                array[i] = array[j];
                array[j] = temp;
            }
        }


    }
    return array;
}

console.log([1,4,5,1,2,3,45,1,2,34,55,3,123,234,123].customSort());
```