# Java to JSON Data Modeling

Given the following sample data and Java Class definitions:

**Data:**

Mr. John A Smith

4800 E. Huron River Dr.

Ann Arbor, MI

48105

Birthdate: 1993-04-06

StudentId: 1112345

Financial Aid Eligible: yes

Home phone: (123) 456-7890

Mobile phone: (789) 654-3210

Grades:

Class Grade Letter Value

CIS100 95.4 A

CIS101 76.7 C+

CIS102 88.0 B+

Program Plan - classes must be taken in this order:

MTH101

ENG101

CIS150

MTH200

ENG200

CIS210

**Java Class Definitions:**

Student

String id

Name name

Address address

List<Phone> phoneNumbers

Map<String, Grade> classGrades

Date birthdate

Boolean financialAidEligible

SortedMap<Integer, String> programPlan

Name

String first

char middle

String last

String title;

Address

String street1

String street2

String city

String state

String zip

Phone

String type

Integer number

Grade

String letterValue

BigDecimal grade

1. Given that the above data is represented using the Java classes shown, give a representation of what the most direct JSON export of the data would look like.

JSON Format:

{

  "student": {

    "name": "john",

    "studentID": "112345",

    "Birthdate": "1993-04-06",

    "Financial": {},

    "phone": {

      "Homephone": "96968969",

      "Mobile": {}

    },

    "address": {

      "addr1": {

        "street": "4800 E. Huron",

        "city": "River Dr.Ann Arbor,",

        "state": "MI",

        "zip": "48105"

      }

    },

    "Program": [

      {}

    ],

    "grade": {

      "class": [

        "CIS100",

        "CIS101",

        "CIS102"

      ],

      "Grade": [

        "95.4",

        "76.7",

        "88.0"

      ],

      "value": [

        "A",

        "C+",

        "B+"

      ]

    }

  }

}

1. If the system using the above class definitions needed to request multiple, unique student records give an example of how you would represent it? What is this representation good/efficient for? What it is it not good/efficient for?
2. If you had to add the concept of multiple semesters/terms to the grade information given above, how would you represent this as both Java classes and JSON data?