2) appropriate constructor. Design a Student class with constructor (`Student (String USN, String Name, Address addr)`), College class with constructor (`College (String Name, Address addr)`) and Employee class with constructor (`Employee (String empID, String Name, Address addr)`). Write a Java program to create 'n' Student objects, College Objects and Employee objects and print the student, college and employee addresses respectively and demonstrate passing of object as a parameter to the constructor.

The code generates random, fictitious data for demonstrating constructors and objects. The names are not intended to be realistic but are sample data for demonstration instead of tedious manual input.

Code:

```java
import java.util.Scanner;
import java.util.Random;

class Address {
    public final int street_num;
    public final String city, state, country;
    public Address(int street_num, String city, String state, String country) {
        this.street_num = street_num;
        this.city = city;
        this.state = state;
        this.country = country;
    }


    public String toString() {
        return String.format("%d, %s, %s, %s", street_num, city, state,
country);
    }
}

class College {
    public final String name;
    public final Address address;

    public College(String name, Address address) {
        this.name = name;
        this.address = address;
    }

    public String toString() {
        return name + "\n" + address.toString();
    }
}

class Employee {
    public final String empID, name;
    public final Address address;
    public Employee(String empID, String name, Address address) {
        this.empID = empID;
        this.name = name;
        this.address = address;
    }
    public String toString() {
        return String.format("Employee ID: %s\nName: %s\nAddress: %s\n", empID,
name,
```

```java
                address.toString());
    }
}

class Student {
    public final String USN, name;
    public final Address address;
    public Student(String USN, String name, Address address) {
        this.USN = USN;
        this.name = name;
        this.address = address;
    }

    public String toString() {
        return String.format("USN: %s\nName: %s\nAddress: %s\n", USN, name,
                address.toString());
    }
}

public class Prog2 {
    public static String[] firstNames = {"Anirudh", "Prakash", "Balu", "Gundu",
            "Joker", "Leonardo", "Vijay", "Allu Arjun", "Aalu"};
    public static String[] lastNames = {"Ravichander", "Kumar", "Babu", "Rao",
            "Chikkanna", "DiCaprio", "Sethupathi"};

    public static String[] cityNames = {"Chelur", "Katti kallur", "Petrolabad",
        "Vancouver", "Sans Brainsisco"};

    public static String[] stateNames = {"Kittinaad", "Dakshin Pradesh",
"Westeros"};

    public static String[] countryNames = {"Pilistan", "Interstellaria"};

    public static Address generateRandomAddress(Random r) {
        return new Address(
                r.nextInt(20),
                cityNames[r.nextInt(cityNames.length)],
                stateNames[r.nextInt(stateNames.length)],
                countryNames[r.nextInt(countryNames.length)]
        );
    }

    public static String generateRandomID(String prefix, Random r) {
        return prefix + r.nextInt(900);
    }

    public static void printAll(Object[] array) {
        for (Object i: array) {
            System.out.println(i.toString() + "\n");
        }
    }

    public static String generateRandomName(Random r) {
        int i = r.nextInt(firstNames.length);
        int j = r.nextInt(lastNames.length);
        return firstNames[i] + " " + lastNames[j];
    }

    public static String generateCollegeName(Random r) {
        return String.format("%s%s", generateRandomName(r), r.nextBoolean() ? "
Institute Of Technology"
                : " College Of Engineering");
    }
```

```java
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Num of colleges: ");
        int n = in.nextInt();
        System.out.print("Seed value for random generator: ");
        long seed = in.nextLong();
        Random r = new Random(seed);
        var students = new Student[n];
        var colleges = new College[n];
        var employees = new Employee[n];
        for (int i = 0; i < n; i++) {
            students[i] = new Student(
                    generateRandomID("1CLG20CS", r),
                    generateRandomName(r),
                    generateRandomAddress(r)
            );
            colleges[i] = new College(
                    generateCollegeName(r),
                    generateRandomAddress(r)
            );
            employees[i] = new Employee(
                    generateRandomID("STAFF", r),
                    generateRandomName(r),
                    generateRandomAddress(r)
            );
        }

        // print all randomly generated details
        System.out.println("STUDENT DETAILS: ");
        printAll(students);
        System.out.println("-------------------------------------------");
        System.out.println("EMPLOYEES DETAILS: ");
        printAll(employees);
        System.out.println("-------------------------------------------");
        System.out.println("COLLEGES DETAILS: ");
        printAll(colleges);
        System.out.println("-------------------------------------------");
    }
}
```

Output:

```
Num of entries: 6
Seed value for random generator: 9023478721
STUDENT DETAILS:
USN: 1CLG20CS64
Name: Gundu DeCaprio
Address: 11, Petrolabad, Westeros, Interstellaria


USN: 1CLG20CS714
Name: Aalu DeCaprio
Address: 4, Petrolabad, Westeros, Interstellaria


USN: 1CLG20CS514
Name: Aalu Ravichander
Address: 18, Vancouver, Westeros, Interstellaria


USN: 1CLG20CS727
Name: Anirudh Ravichander
Address: 2, Sans Brainsisco, Kittinaad, Interstellaria
```

USN: 1CLG20CS627
Name: Gundu Kumar
Address: 0, Sans Brainsisco, Kittinaad, Interstellaria

USN: 1CLG20CS886
Name: Balu Kumar
Address: 8, Chelur, Kittinaad, Pilistan

EMPLOYEES DETAILS:
Employee ID: STAFF118
Name: Allu Arjun Kumar
Address: 15, Sans Brainsisco, Westeros, Interstellaria

Employee ID: STAFF172
Name: Leonardo DeCaprio
Address: 18, Katti kallur, Westeros, Pilistan

Employee ID: STAFF58
Name: Aalu Rao
Address: 8, Petrolabad, Westeros, Pilistan

Employee ID: STAFF463
Name: Prakash DeCaprio
Address: 17, Katti kallur, Kittinaad, Pilistan

Employee ID: STAFF321
Name: Prakash Ravichander
Address: 13, Sans Brainsisco, Westeros, Interstellaria

Employee ID: STAFF86
Name: Leonardo Babu
Address: 15, Katti kallur, Dakshin Pradesh, Pilistan

COLLEGES DETAILS:
Prakash Sethupathi Institute Of Technology
5, Sans Brainsisco, Kittinaad, Pilistan

Leonardo Chikkanna College Of Engineering
12, Chelur, Dakshin Pradesh, Interstellaria

Anirudh Babu College Of Engineering
5, Chelur, Westeros, Interstellaria

Aalu Chikkanna Institute Of Technology
3, Katti kallur, Kittinaad, Interstellaria

Aalu Chikkanna College Of Engineering
8, Katti kallur, Dakshin Pradesh, Pilistan

Leonardo Kumar Institute Of Technology

15, Petrolabad, Kittinaad, Interstellaria

Process finished with exit code 0