Prueba de Caja Blanca

“Gestión de información académica InClass”

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Fecha 18/02/2024

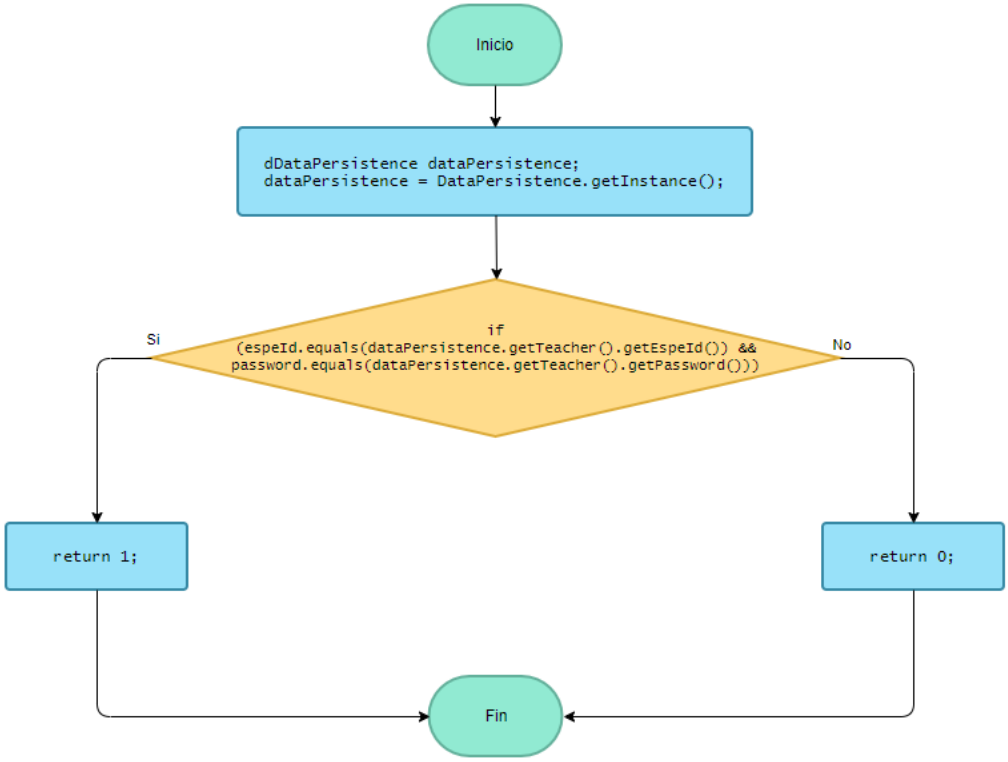
BUSCAR PROBLEMAS

Prueba caja blanca login

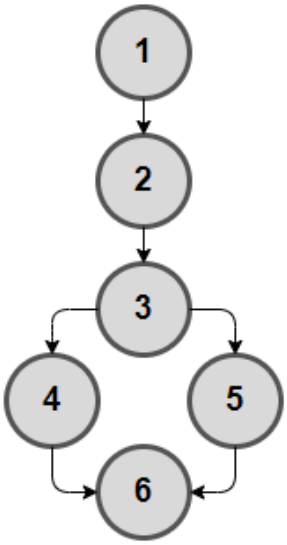
CÓDIGO FUENTE

```
    public static int loginTeacher(String espeId, String password) {
        DataPersistence dataPersistence;
        dataPersistence = DataPersistence.getInstance();
        if (espeId.equals(dataPersistence.getTeacher().getEspeId()) &&
password.equals(dataPersistence.getTeacher().getPassword())) {
            return 1;
        } else {
            return 0;
        }
    }
```

DIAGRAMA DE FLUJO



Grafo



RUTAS

R1: 1, 2, 3, 4, 6
R2: 1, 2, 3, 5, 6

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=1+1=2
- V(G) = A – N + 2
  V(G)= 6 – 6 + 2 = 2

DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos

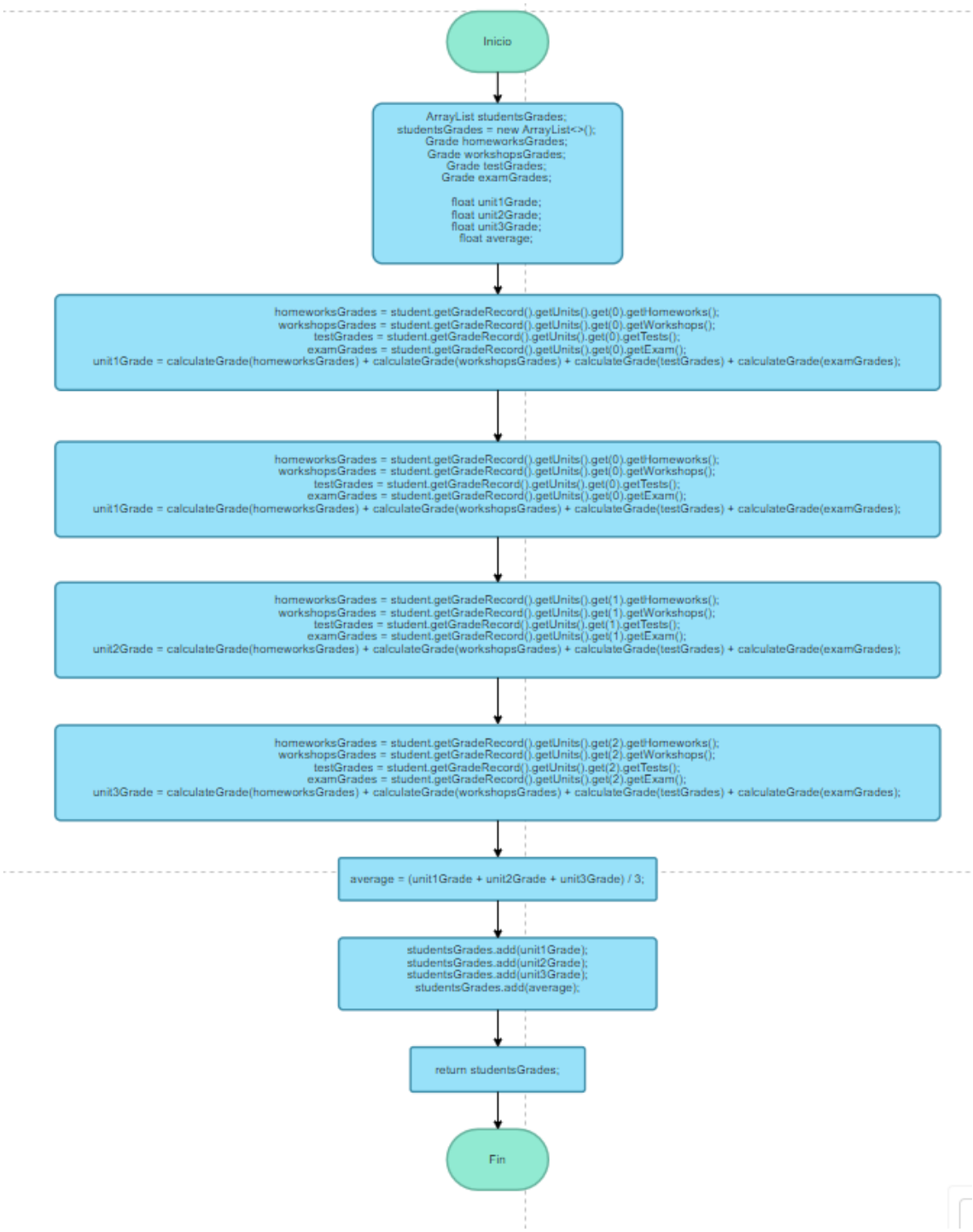
Prueba caja blanca getGrades por unidad

CÓDIGO FUENTE

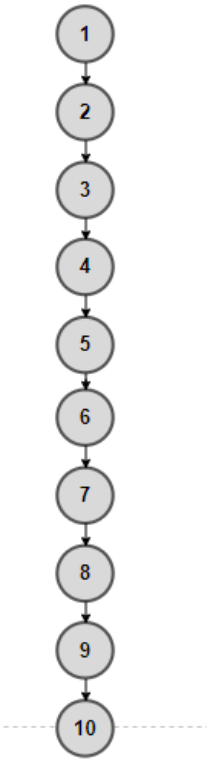
```
   public static ArrayList<Float> getGradesUnit(Student student) {
        ArrayList<Float> studentsGrades;
        studentsGrades = new ArrayList<>();
        Grade homeworksGrades;
        Grade workshopsGrades;
        Grade testGrades;
        Grade examGrades;

        float unit1Grade;
        float unit2Grade;
        float unit3Grade;
        float average;

        homeworksGrades =
student.getGradeRecord().getUnits().get(0).getHomeworks();
        workshopsGrades =
student.getGradeRecord().getUnits().get(0).getWorkshops();
        testGrades = student.getGradeRecord().getUnits().get(0).getTests();
        examGrades = student.getGradeRecord().getUnits().get(0).getExam();
        unit1Grade = calculateGrade(homeworksGrades) +
calculateGrade(workshopsGrades) + calculateGrade(testGrades) +
calculateGrade(examGrades);

        homeworksGrades =
student.getGradeRecord().getUnits().get(1).getHomeworks();
        workshopsGrades =
student.getGradeRecord().getUnits().get(1).getWorkshops();
        testGrades = student.getGradeRecord().getUnits().get(1).getTests();
        examGrades = student.getGradeRecord().getUnits().get(1).getExam();
        unit2Grade = calculateGrade(homeworksGrades) +
calculateGrade(workshopsGrades) + calculateGrade(testGrades) +
calculateGrade(examGrades);

        homeworksGrades =
student.getGradeRecord().getUnits().get(2).getHomeworks();
        workshopsGrades =
student.getGradeRecord().getUnits().get(2).getWorkshops();
        testGrades = student.getGradeRecord().getUnits().get(2).getTests();
        examGrades = student.getGradeRecord().getUnits().get(2).getExam();
        unit3Grade = calculateGrade(homeworksGrades) +
calculateGrade(workshopsGrades) + calculateGrade(testGrades) +
calculateGrade(examGrades);

        average = (unit1Grade + unit2Grade + unit3Grade) / 3;
```

```
        studentsGrades.add(unit1Grade);
        studentsGrades.add(unit2Grade);
        studentsGrades.add(unit3Grade);
        studentsGrades.add(average);

        return studentsGrades;
    }
```

DIAGRAMA DE FLUJO



GRAFO



RUTAS

R1: 1, 2, 3, 4,5,6,7,8,9,10

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=0+1=1
- V(G) = A – N + 2
  V(G)= 9– 10 + 2 = 1

DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos

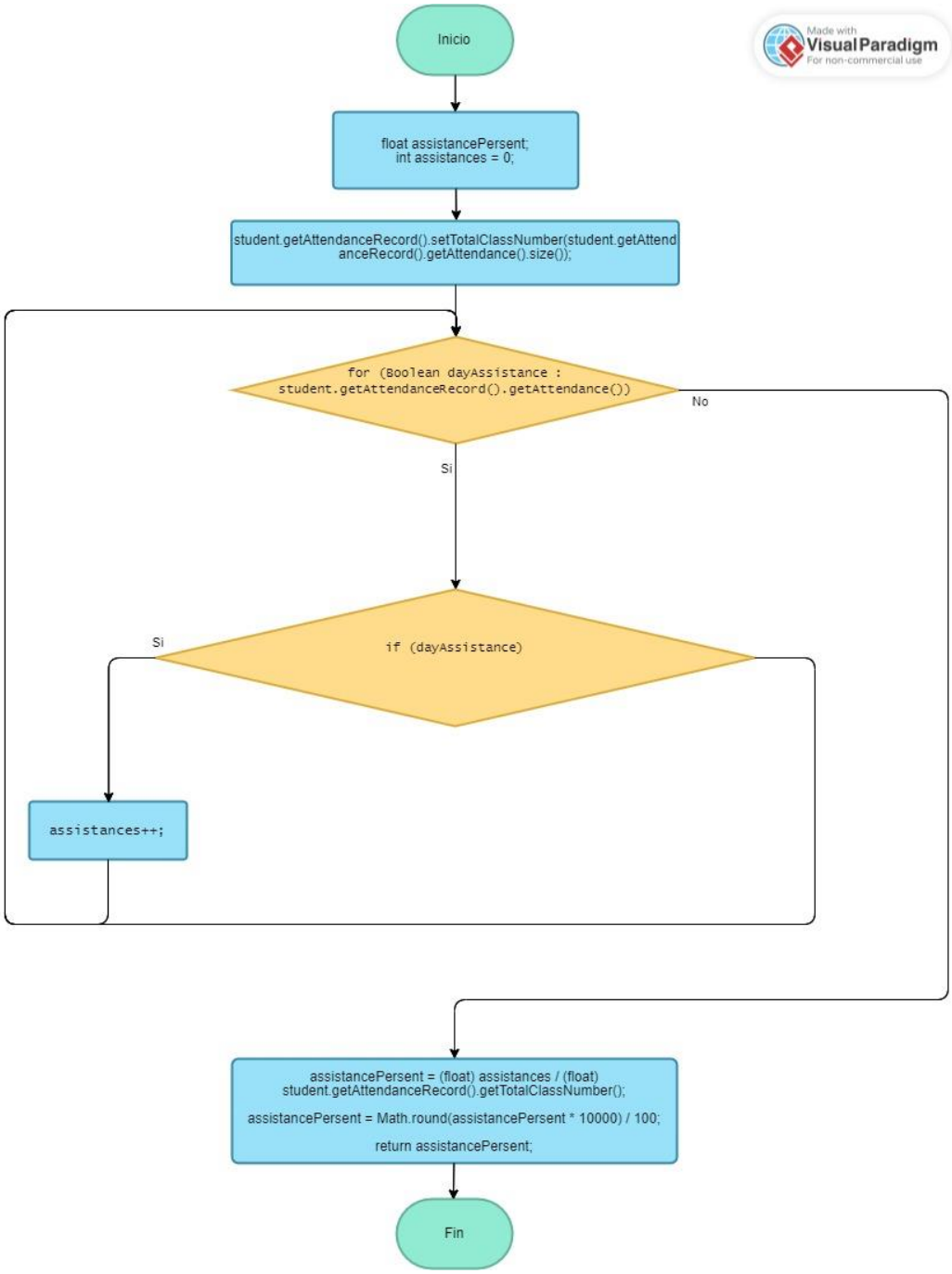
Prueba caja blanca calcular porcentaje de asistencias

CÓDIGO FUENTE

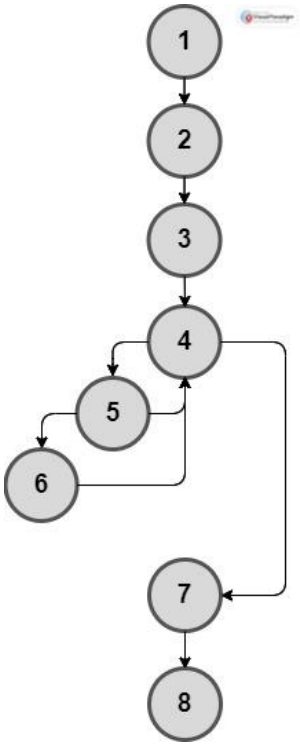
```
    public static float calculateAssistancePersetn(Student student) {
        float assistancePersent;
        int assistances = 0;
        student.getAttendanceRecord().setTotalClassNumber(student.
getAttendanceRecord().getAttendance().size());
        for (Boolean dayAssistance : student.getAttendanceRecord().
getAttendance()) {
            if (dayAssistance) {
                assistances++;
            }
        }
```

```
        assistancePersent = (float) assistances / (float)
student.getAttendanceRecord().getTotalClassNumber();

        assistancePersent = Math.round(assistancePersent * 10000) / 100;

        return assistancePersent;
    }
```

DIAGRAMA DE FLUJO



GRAFO



RUTAS

R1: 1, 2, 3, 4, 7, 8
R2: 1, 2, 3, 4, 5, 4, 7, 8
R3: 1, 2, 3, 4, 5, 6, 4, 7, 8

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=2+1=3
- V(G) = A – N + 2
  V(G)= 9– 8 + 2 = 3

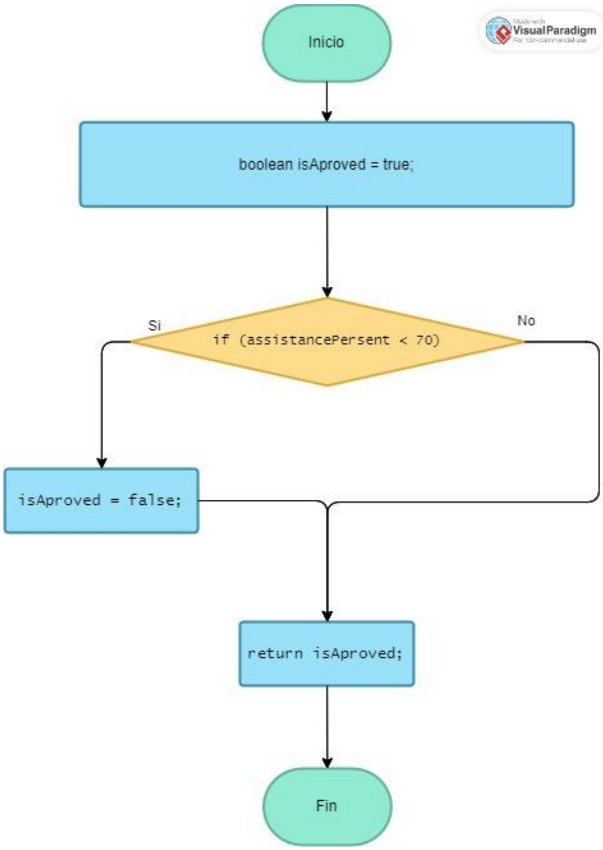
DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos

Prueba caja blanca verificar si desaprobo por asistencias

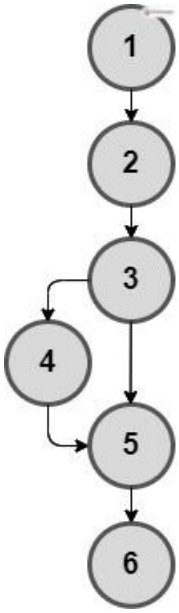
CÓDIGO FUENTE

```
    public static boolean verifyAttendancePesent(float assistancePersent) {
        boolean isAproved = true;

        if (assistancePersent < 70) {
            isAproved = false;
        }

        return isAproved;
    }
```

DIAGRAMA DE FLUJO



GRAFO



RUTAS

R1: 1, 2, 3, 5, 6
R2: 1, 2, 3, 4, 5, 6

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=1+1=2
- V(G) = A – N + 2
  V(G)= 6– 6 + 2 = 2

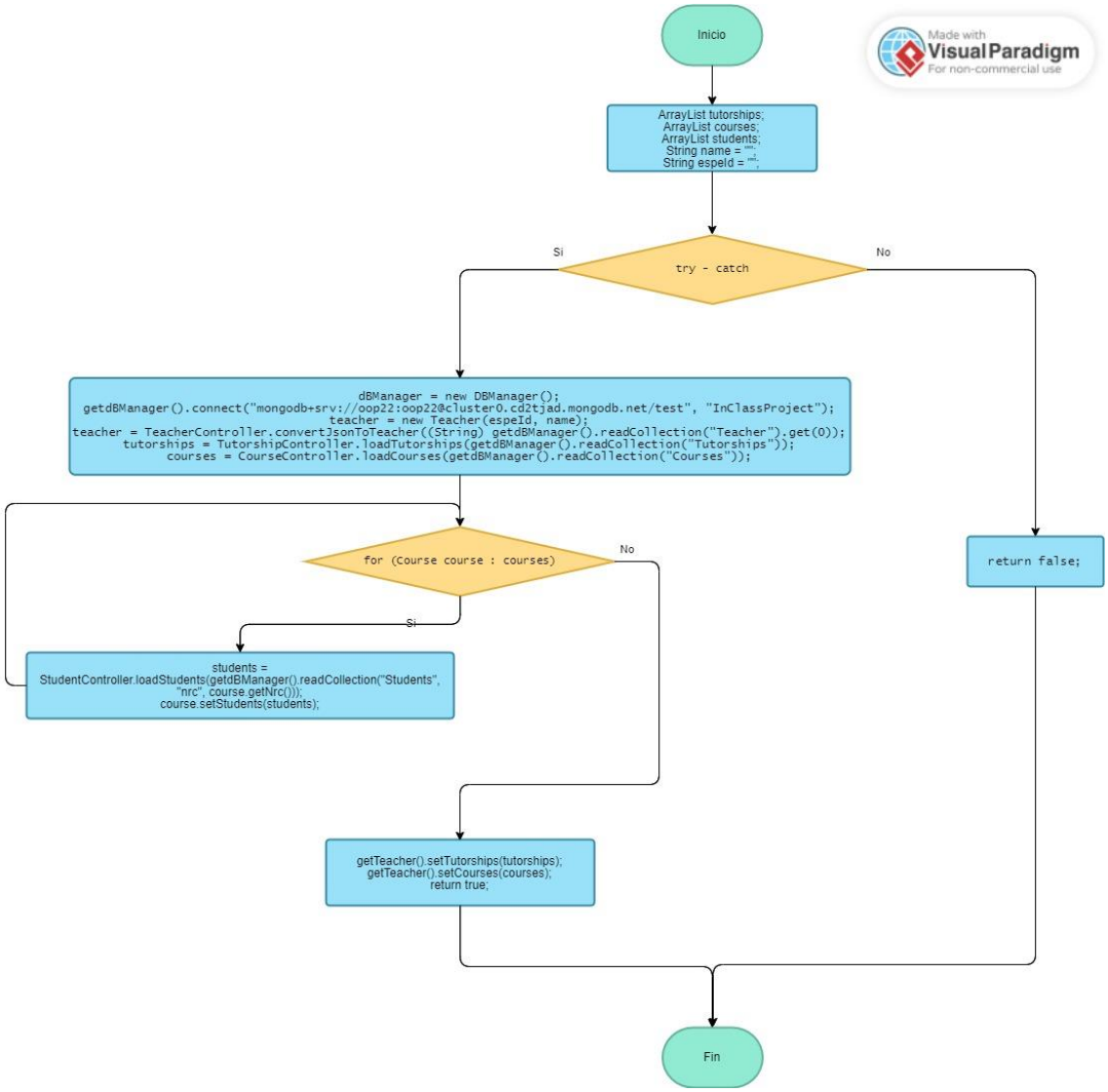
DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos

Prueba caja blanca conectar a mongoDB

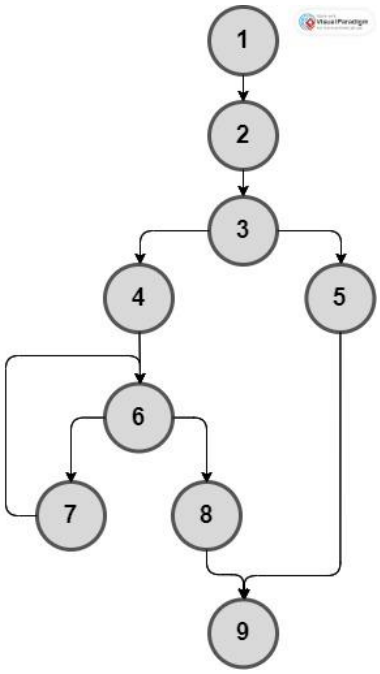
CÓDIGO FUENTE

```
    public boolean connectMongoDB() {
        ArrayList<Tutorship> tutorships;
        ArrayList<Course> courses;
        ArrayList<Student> students;
        String name = "";
        String espeId = "";

        try {
            dBManager = new DBManager();

getdBManager().connect("mongodb+srv://oop22:oop22@cluster0.cd2tjad.mongodb.net
/test", "InClassProject");
            teacher = new Teacher(espeId, name);
            teacher = TeacherController.convertJsonToTeacher((String)
getdBManager().readCollection("Teacher").get(0));
            tutorships =
TutorshipController.loadTutorships(getdBManager().readCollection("Tutorships")
);
            courses =
CourseController.loadCourses(getdBManager().readCollection("Courses"));

            for (Course course : courses) {
                students =
StudentController.loadStudents(getdBManager().readCollection("Students",
"nrc", course.getNrc()));
                course.setStudents(students);
            }

            getTeacher().setTutorships(tutorships);
            getTeacher().setCourses(courses);
            return true;
        } catch (Exception e) {
            return false;
        }

    }
```

DIAGRAMA DE FLUJO


Inicio
ArrayList tutorships;
ArrayList courses;
ArrayList students;
String name = "";
String espeId = "";
try - catch
Si
No
dBManager = new DBManager();
getdBManager().connect("mongodb+srv://oop22:oop22@cluster0.cd2tjad.mongodb.net/test", "InClassProject");
teacher = new Teacher(espeId, name);
teacher = TeacherController.convertJsonToTeacher((String) getdBManager().readCollection("Teacher").get(0));
tutorships = TutorshipController.loadTutorships(getdBManager().readCollection("Tutorships"));
courses = CourseController.loadCourses(getdBManager().readCollection("Courses"));
for (Course course : courses)
No
Si
return false;
students =
StudentController.loadStudents(getdBManager().readCollection("Students",
"nrc", course.getNrc()));
course.setStudents(students);
getTeacher().setTutorships(tutorships);
getTeacher().setCourses(courses);
return true;
Fin

GRAFO


1
2
3
4
5
6
7
8
9

RUTAS

R1: 1, 2, 3, 5, 9
R2: 1, 2, 3, 4, 6, 8, 9
R3: 1, 2, 3, 4, 6, 7, 6, 8, 9

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=2+1=3
- V(G) = A – N + 2
  V(G)= 10– 9 + 2 = 3

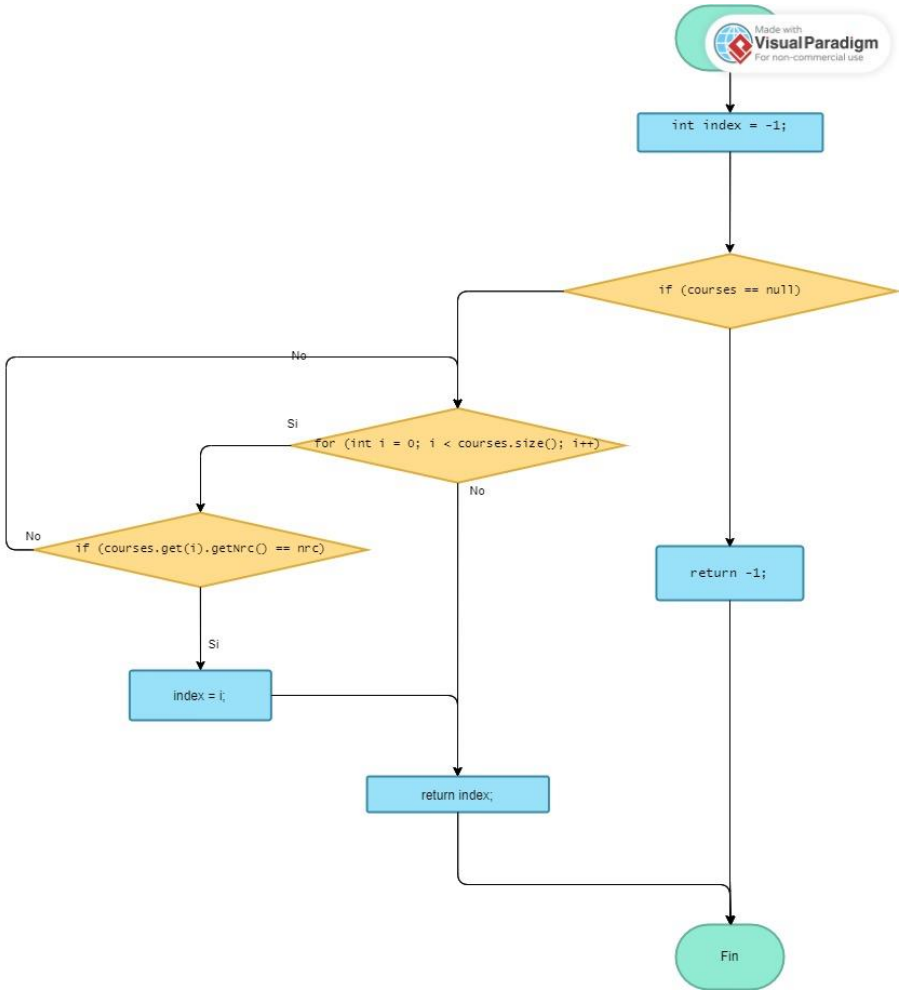
DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos

Prueba caja blanca conectar buscar cursos

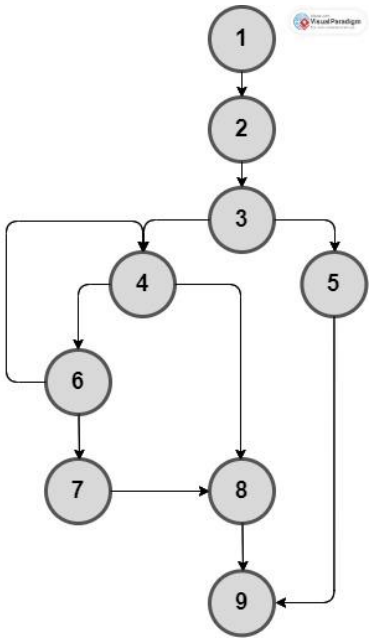
CÓDIGO FUENTE

```
    public static int findCourse(ArrayList<Course> courses, int nrc) {
        int index = -1;

        if (courses == null) {
            return -1;
        }

        for (int i = 0; i < courses.size(); i++) {
            if (courses.get(i).getNrc() == nrc) {
                index = i;
                return index;
            }
        }

        return index;
    }
```

DIAGRAMA DE FLUJO


Made with VisualParadigm
For non-commercial use
int index = -1;
if (courses == null)
No
Si
for (int i = 0; i < courses.size(); i++)
No
No
if (courses.get(i).getNrc() == nrc)
return -1;
Si
index = i;
return index;
Fin

GRAFO


1
2
3
4
5
6
7
8
9

RUTAS

R1: 1, 2, 3, 5, 9
R2: 1, 2, 3, 4, 8, 9
R3: 1, 2, 3, 4, 6, 7, 8, 9
R4: 1, 2, 3, 4, 6, 4, 8, 9

COMPLEJIDAD CICLOMÁTICA

Se puede calcular de las siguientes formas:

- V(G) = número de nodos predicados(decisiones)+1
  V(G)=3+1=4
- V(G) = A – N + 2
  V(G)= 11– 9 + 2 = 4

DONDE:
P: Número de nodos predicado
A: Número de aristas
N: Número de nodos