



HACETTEPE UNIVERSITY
BBM104 – ASSIGNMENT 2
REPORT

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COMPUTER ENGINEERING

REPORT

1) Problem Definition

Our problem in this assignment is to create text files according to the registration numbers of people who are academicians, officers, employees and security positions, and record their information and salaries in these text files.

2) Algorithms

a) In Main class: There are ArrayLists that hold FacultyMember, Officer etc. objects.

```
//ArrayLists for objects (facultyMember, officer e.g)
static ArrayList<FacultyMember> facultyMembers = new ArrayList<>();
static ArrayList<ResearchAssistant> researchAssistants = new ArrayList<>();
static ArrayList<Officer> officers = new ArrayList<>();
static ArrayList<PartTimeEmployee> partTimeEmployees = new ArrayList<>();
static ArrayList<Worker> workers = new ArrayList<>();
static ArrayList<Chief> chiefs = new ArrayList<>();
static ArrayList<Security> securities = new ArrayList<>();
```

b) In Main class: Arrays that hold text files read

```
// Reading file
String[] personnelArray = ReadFromFile.readFile(args[0]);
String[] monitorArray = ReadFromFile.readFile(args[1]);
... ..
```

c) In Main class: Calling print functions and program function

```
//Calling program function
Program.Program(personnelArray,monitorArray,facultyMembers,researchAssistants,officers,partTimeEmployees,
workers,chiefs,securities);
//Calling print functions
Program.printFM(facultyMembers);
Program.printRA(researchAssistants);
Program.printOF(officers);
Program.printW(workers);
Program.printC(chiefs);
Program.printPTE(partTimeEmployees);
Program.printS(securities);
```

d) In Program class: Adding personnel according to personnel.txt

```
for (String line : personnelArray) {
    splitLine = line.split("\t");

    if (splitLine[2].equals("FACULTY_MEMBER")) {
        Main.facultyMembers.add(new FacultyMember(splitLine[0],splitLine[1],Integer.parseInt(splitLine[3]),0,0,0,0,0));
    }
    else if (splitLine[2].equals("RESEARCH_ASSISTANT")) {
        Main.researchAssistants.add(new ResearchAssistant(splitLine[0],splitLine[1],Integer.parseInt(splitLine[3]),0,0,0,0,0));
    }
}
```

e) In Program class: Setting salaries according to monitoring.txt

```
for (String line : monitorArray) {
    splitLine = line.split("\t");
    //Setting information of faculty member to attributes
    for (FacultyMember fm : Main.facultyMembers) {
        if (fm.getRegNo().equals(splitLine[0])) {
            fm.setHourOfWork(Integer.parseInt(splitLine[1])+Integer.parseInt(splitLine[2])+Integer.parseInt(splitLine[3])+
                Integer.parseInt(splitLine[4]));
            fm.setBaseSalary(2600);
            fm.setSsBenefits(fm.getBaseSalary()*1.35);
            fm.setSeverancePay((2020-fm.getYearOfStart())*16);

            for (int i = 1;i<5;i++) {
                fm.setAddCourseFee(fm.getAddCourseFee()+
                    ((Integer.parseInt(splitLine[i]) - 40) / 8 >= 1 ? 160 : (Integer.parseInt(splitLine[i])-40)*20));
            }
            fm.setTotalSalary(fm.getBaseSalary()+fm.getSsBenefits()+fm.getSeverancePay()+fm.getAddCourseFee());
        }
    }
}
```

f) In Program class: Printing information of personnel

```
//PRINT FUNCTIONS
public static void printFM(ArrayList<FacultyMember> facultyMembers) throws FileNotFoundException {
    //(Math.round(bill.getTotal()*10)/10.0)
    for (FacultyMember fm : Main.facultyMembers) {
        String[] splitName;
        String regFM = fm.getRegNo();
        splitName = fm.getName().split(" ");
        PrintStream facultyMember = new PrintStream(new File(regFM+".txt"));
        System.setOut(facultyMember);
        System.out.printf("Name : "+splitName[0]+"\n"+"Surname : "+splitName[1]+"\n"+"Registration Number : "+fm.getRegNo()+"\n"+
            "Position : "+fm.getPosition()+"\n"+"Year of start : "+fm.getYearOfStart()+"\n"+"Total salary : "+("%.2f",
            fm.getTotalSalary()));
    }
}
```

