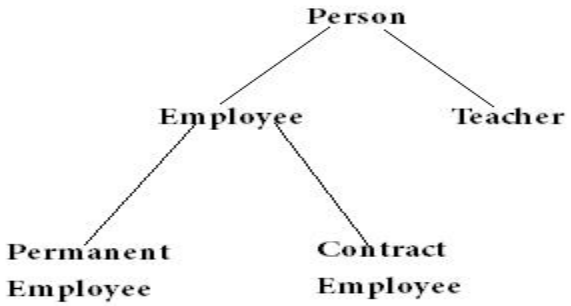
Lab 5: Inheritance




```
public class Person {

    String name;
    int age;

    public Person(String n, int a) {
        name = n;
        age = a;
    }

    public void printDetails() {
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
    }
}
```

Student : name , age, major, and gpa

Teacher:name, age, faculty

Employee:name, age, employeeId,

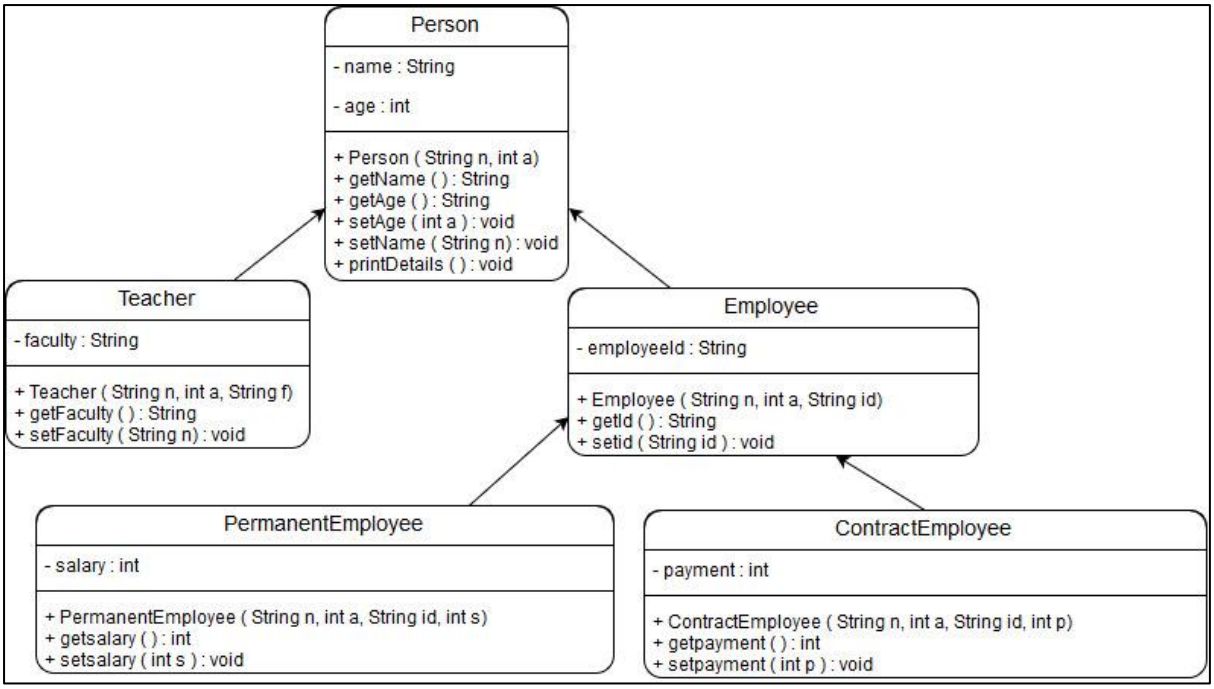
PermanentEmployee:name, age, employeeId, salary

ContractEmployee: name, age, employeeId, payment

Write test program to

1 create object and call every methods

2 create an ArrayList to keep every object that created in 1.



Source code class Person

```
1  public class Person {
2    private String name;
3    private int age;
4     public Person(){}
5    public Person(String n, int a){
6      name = n;
7      age = a;}
8    public void printDetails () {
9          System.out.println("Name: " + name);
10         System.out.println("Age: " + age);
11     }
12   public String getName(){
13      return name; }
14     public void setName(String n){
15      this.name = n;}
16     public int getAge(){
17      return age; }
18     public void setAge(int a){
19      this.age = a;}
20     public String getFaculty()
21     {  return "";}
22      public String getemployeeId()
23     {  return ""; }
24      public int getPersalary()
25     {  return 0; }
26       public int getConsalary()
27    {  return 0; }
28 }
```

Source code class Teacher

```
/**
 * Auto Generated Java Class.
 */

public class Teacher extends Person{
    private String faculty;
    public Teacher(String name, int age,String f){
    super(name, age);
    faculty = f;
    }
    public String getFaculty()
   {
      return faculty;
    }

   public void setFaculty (String f) {
        faculty = f;
    }

}
```

Source code class Employee

```
public class Employee extends Person{
    private String employeeId;
    public Employee(String name, int age,String em){
    super(name, age);
    employeeId = em;
    }
    public String getemployeeId()
   {
      return employeeId;
    }
   public void setemployeeId (String em) {
        employeeId = em;
    }
}
```

Source code class PermanentEmployee

```
public class PermanentEmployee extends Employee{
    private int salary;
    public PermanentEmployee(String name, int age,String em,int salary){
    super(name, age,em);
    this.salary = salary;
    }
    public int getPersalary()
    {
      return this.salary;
    }
   public void setPersalary(int salary)
   {
        this.salary = salary;
    }
}

```

Source code class ContractEmployee

```
1  public class ContractEmployee extends Employee{
2      private int payment;
3      public ContractEmployee(String name, int age,String em,int pay){
4      super(name, age,em);
5      payment = pay;
6      }
7      public int getConsalary()
8     {
9        return payment;
10     }
11    public void setConsalary (int pay) {
12         payment = pay;
13     }
14 }
```

Source code class ArraylistPerson

```
1  import java.util.ArrayList;
2  public class ArraylistPerson
3  {
4    private ArrayList<Person> items;
5    public ArraylistPerson(){
6      items = new ArrayList<Person>();
7    }
8    public void addPerson(Person theItem){
9      items.add(theItem);
10   }
11   public void list()
12   {
13     System.out.println("Print List");
14     for(Person item : items)
15     {
16
17       System.out.println("Name : "+item.getName() +" | AGE : "+ item.getAge()+" | Faculty : "
18                          + item.getFaculty() +"| EmployeeId : "+item.getemployeeId()
19                            +" | ContractSalary : "  + item.getConsalary() +" | PermanentSalary : "+ item.getPersalary() );
20     }
21   }
22 }
```

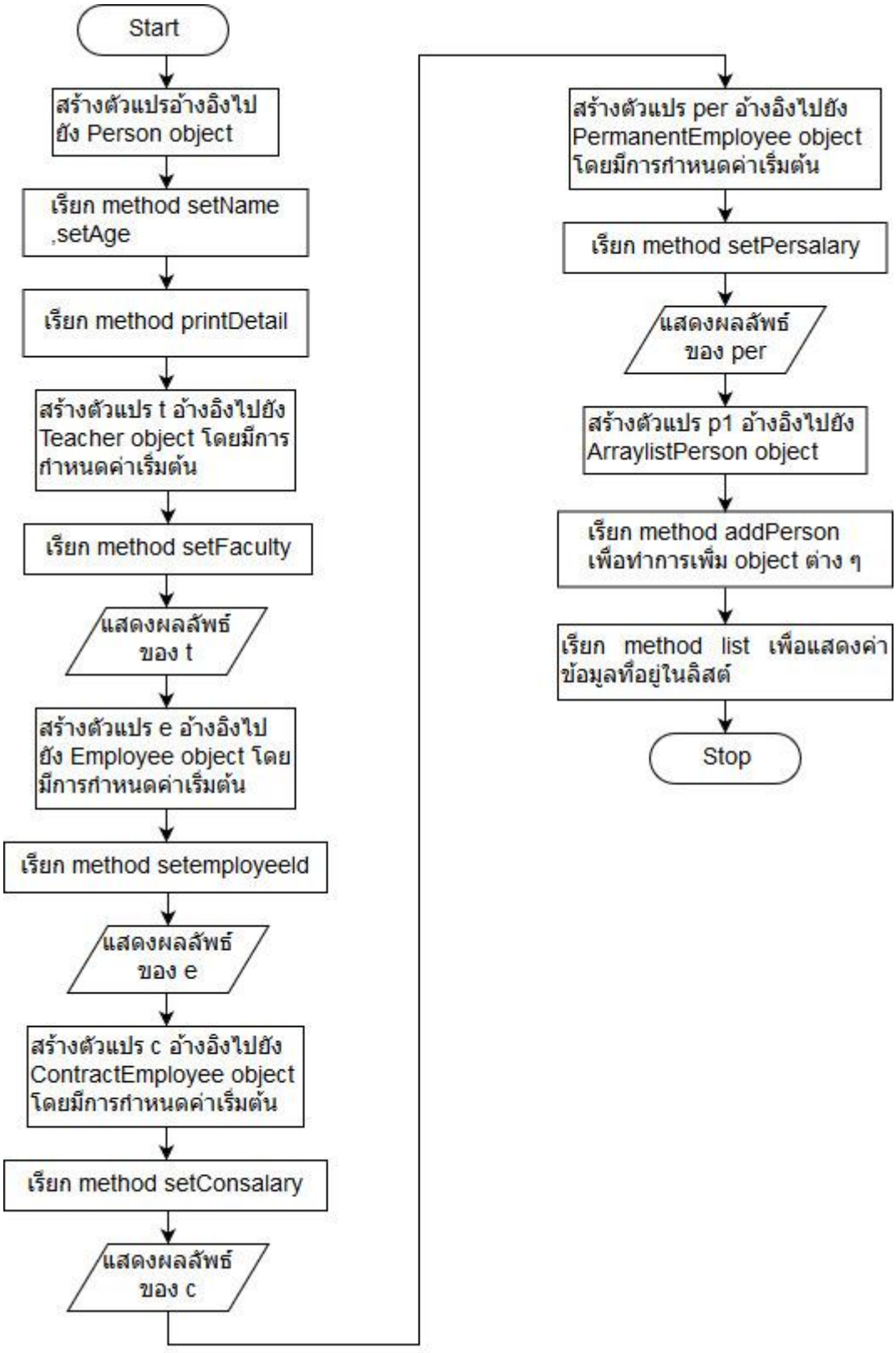
Source code class MainPerson

```
1  public class MainPerson{
2  public static void main(String[] args) {
3      Person p = new Person();
4      p.setName("Guita");
5      p.setAge(22);
6      System.out.println("-- Person --");
7      p.printDetails();
8      Teacher t = new Teacher("Khunpiny",22,"Coe");
9      t.setFaculty("CoE");
10     System.out.println("-- Teacher --\n"+t.getName()+" " + t.getAge() +" " + t.getFaculty());
11     Employee e = new Employee("Bow_e",22,"57_062");
12     e.setemployeeId("5735512062");
13     System.out.println("-- Employee --\n" + e.getName()+" " + e.getAge() +" " + e.getemployeeId());
14     ContractEmployee c = new ContractEmployee("Sirirat",22,"57_148",30000);
15     c.setConsalary(50000);
16     System.out.println("-- ContractEmployee --\n" +c.getName()+" " + c.getAge() +" " + c.getemployeeId() +" " + c.getConsalary());
17     PermanentEmployee per = new PermanentEmployee("Aunyamane",22,"57_149",30000);
18     per.setPersalary(45000);
19     System.out.println("-- PermanentEmployee --\n"+ per.getName()+" " + per.getAge() +" " + per.getemployeeId() +" " + per.getPersalary());
20     ArraylistPerson pl = new ArraylistPerson();
21     pl.addPerson(p);
22     pl.addPerson(t);
23     pl.addPerson(e);
24     pl.addPerson(c);
25     pl.addPerson(per);
26     pl.list();
27   }
28 }
```

Test Code All Method

```
> run MainPerson
-- Person --
Name: Guita
Age: 22
-- Teacher --
Khunpiny 22 CoE
-- Employee --
Bow_e 22 5735512062
-- ContractEmployee --
Sirirat 22 57_148 50000
-- PermanentEmployee --
Aunyamane 22 57_149 45000
Print List
Name : Guita | AGE : 22 | Faculty : | EmployeeId :  | ContractSalary : 0 | PermanentSalary : 0
Name : Khunpiny | AGE : 22 | Faculty : CoE| EmployeeId :  | ContractSalary : 0 | PermanentSalary : 0
Name : Bow_e | AGE : 22 | Faculty : | EmployeeId : 5735512062 | ContractSalary : 0 | PermanentSalary : 0
Name : Sirirat | AGE : 22 | Faculty : | EmployeeId : 57_148 | ContractSalary : 50000 | PermanentSalary : 0
Name : Aunyamane | AGE : 22 | Faculty : | EmployeeId : 57_149 | ContractSalary : 0 | PermanentSalary : 45000
>
```

Flowchart


Start
สร้างตัวแปรอ้างอิงไปยัง Person object
เรียก method setName ,setAge
เรียก method printDetail
สร้างตัวแปร t อ้างอิงไปยัง Teacher object โดยมีการกำหนดค่าเริ่มต้น
เรียก method setFaculty
แสดงผลลัพธ์ของ t
สร้างตัวแปร e อ้างอิงไปยัง Employee object โดยมีการกำหนดค่าเริ่มต้น
เรียก method setemployeeId
แสดงผลลัพธ์ของ e
สร้างตัวแปร c อ้างอิงไปยัง ContractEmployee object โดยมีการกำหนดค่าเริ่มต้น
เรียก method setConsalary
แสดงผลลัพธ์ของ c
สร้างตัวแปร per อ้างอิงไปยัง PermanentEmployee object โดยมีการกำหนดค่าเริ่มต้น
เรียก method setPersalary
แสดงผลลัพธ์ของ per
สร้างตัวแปร p1 อ้างอิงไปยัง ArraylistPerson object
เรียก method addPerson เพื่อทำการเพิ่ม object ต่าง ๆ
เรียก method list เพื่อแสดงค่าข้อมูลที่อยู่ในลิสต์
Stop