

```

public class Menu { ...../25
    private String name;
    private Dish arrDish[]; .....1
    private int nbDish; .....1

    public Menu(String s) { ...../2
        name = s;
        arrDish = new Dish[20]; .....1
        nbDish = 0; .....1
    }

    public Menu(Menu m) { ...../4
        name = m.name;
        arrDish = new Dish[m.arrDish.length]; .....1

/*      nbDish = 0; .....1
        for (int i = 0; i < m.nbDish; i++) { .....1
            addDish(m.arrDish[i]); .....1
        }
*/

        for (int i=0; i < m.nbDish; i++) { .....1
            arrDish[i] = m.arrDish[i]; .....1
        }
        nbDish = m.nbDish; .....1
    }

    public boolean addDish(Dish d) { ...../4
        if (nbDish < arrDish.length) { .....1
            arrDish[nbDish] = d; .....1
            nbDish++; .....1
            return true; .....0.5
        }
        else
            return false; .....0.5
    }

    public void display() { ...../3
        System.out.println(name); .....1
        for (int i = 0; i < nbDish; i++) { .....1
            arrDish[i].display(); .....1
        }
    }

    public Dish cheapestDish() { ...../5
        Dish res = arrDish[0]; .....1

        for (int i=1; i < nbDish; i++) .....1
            if (arrDish[i].getPrice() < res.getPrice()) .....1
                res = arrDish[i]; .....1

        return res; .....1}

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public double avgDish() { ...../5
    double p = 0.0; .....1

    for (int i=0; i < nbDish; i++) .....1
        p += arrDish[i].getPrice(); .....1

    if (nbDish > 0) .....1
        return p / nbDish; .....1
    else
        return 0.0;

}

}

public class Dessert extends Menu { ...../6
    private String type;

    public Dessert(String n, String t) { ...../1
        super(n); .....1
        type = t;
    }

    public Dessert(Dessert d) { .....1 ...../2
        super(d); .....1
        type = d.type;
    }

    public String getType() { .....1 ...../1
        return type;
    }

    public void display() { .....1 ...../2
        super.display(); .....1
        System.out.println(type);
    }

}

```

```

public class Restaurant { ...../29

    private String name, location, contact;
    private Menu arrMenu[]; .....1
    private int nbMenu; .....1

    public Restaurant(String n, String l, String c, int size) { ...../2
        name = n;
        location = l;
        contact = c;

        arrMenu = new Menu[size]; .....1
        nbMenu = 0; .....1
    }

    public void addMenu(Menu m) { ...../10
        if (nbMenu < arrMenu.length) { .....1
            if (m instanceof Lunch) .....1
                arrMenu[nbMenu++] = new Lunch((Lunch) m); .....1+1+1
            else
                if (m instanceof Dessert)
                    arrMenu[nbMenu++] = new Dessert((Dessert) m); ...1+1+1
                else
                    arrMenu[nbMenu++] = new Menu(m); .....1+1
        }
    }

    public Menu[] selectLunch(double a, int t) { ...../10
        Menu res [] = new Menu[arrMenu.length]; .....1
        int j = 0; .....1

        for (int i = 0; i < nbMenu; i++) { .....1
            if ( arrMenu[i] instanceof Lunch && .....1
                arrMenu[i].avgDish() < a && .....1
                ((Lunch)arrMenu[i]).getStartTime() == t) .....1+1
                res[j++] = arrMenu[i]; .....1+1
        }
        return res; .....1
    }

    public Menu bestLunchOffer() { ...../5
        Menu res = arrMenu[0]; .....1

        for (int i = 1; i < nbMenu; i++) { .....1
            if ( arrMenu[i].cheapestDish().getPrice() <
                res.cheapestDish().getPrice() ) .....1
                res = arrMenu[i]; .....1
        }
        return res; .....1
    }
}

```

```
public Menu bestLunchOfferExpected() {  
    Menu res = null;  
  
    for (int i=0; i < nbMenu; i++) {  
        if ( arrMenu[i] instanceof Lunch ) {  
            if ( res == null ||  
                arrMenu[i].cheapestDish().getPrice() <  
                res.cheapestDish().getPrice() )  
                res = arrMenu[i];  
        }  
    }  
    return res;  
}
```