| MODULE NAME: | MODULE CODE: |
|---|---|
| PROGRAMMING 1A | PROGf5111 |
| PROGRAMMING 1A | PROG5121 |

**ASSESSMENT TYPE: ASSIGNMENT 1 (PAPER ONLY)**

**TOTAL MARK ALLOCATION: 100 MARKS**

**TOTAL HOURS: 15 HOURS**

*By submitting this assignment, you acknowledge that you have read and understood all the rules as per the terms in the registration contract, in particular the assignment and assessment rules in The IIE Assessment Strategy and Policy (IIE009), the intellectual integrity and plagiarism rules in the Intellectual Integrity Policy (IIE023), as well as any rules and regulations published in the student portal.*

**INSTRUCTIONS:**

1. ***No material may be copied from original sources, even if referenced correctly, unless it is a direct quote indicated with quotation marks. No more than 10% of the assignment may consist of direct quotes.***
2. ***Any assignment with a similarity index of more than 25% will be scrutinised for plagiarism. Please ensure you attach an originality report to your assignment if required.***
3. ***Make a copy of your assignment before handing it in.***
4. *Assignments must be typed unless otherwise specified.*
5. *All work must be adequately and correctly referenced.*
6. *Begin each section on a new page.*
7. *Follow all instructions on the assignment cover sheet.*
8. *This is an individual assignment.*

**Referencing Rubric**

Providing evidence based on valid and referenced academic sources is a fundamental educational principle and the cornerstone of high-quality academic work. Hence, The IIE considers it essential to develop the referencing skills of our students in our commitment to achieve high academic standards. Part of achieving these high standards is referencing in a way that is consistent, technically correct and congruent. This is not plagiarism, which is handled differently.

Poor quality formatting in your referencing will result in a penalty **of a maximum of ten percent being deducted from the mark awarded**, according to the following guidelines. Please note, however, that **evidence of plagiarism in the form of copied or uncited work (not referenced), absent reference lists, or exceptionally poor referencing, may result in action being taken in accordance with The IIE's Intellectual Integrity Policy (0023)**.

**Markers are required to provide feedback to students by indicating (circling/underlining) the information that best describes the student's work.**

**Minor technical referencing errors: 5% deduction from the overall mark – the student's work contains five or more errors listed in the minor errors column in the table below.**

**Major technical referencing errors: 10% deduction from the overall mark – the student's work contains five or more errors listed in the major errors column in the table below.**

**If both minor and major errors are indicated, then 10% is deducted from the overall mark.**

**The examples provided below are not exhaustive but are provided to illustrate the error.**

| **Required:**<br>**Technically correct referencing style** | **Minor errors**<br>**in technical correctness of referencing style**<br>**Deduct 5% from mark awarded** | **Major errors**<br>**In technical correctness of referencing style**<br>**Deduct 10% from mark awarded** |
|---|---|---|
| Consistency<br>The same referencing format has been used for all in-text references and in the bibliography/reference list. | Minor inconsistencies.<br>The referencing style is generally consistent, but there are one or two changes in the format of in-text referencing and/or in the bibliography.<br>For example, page numbers for direct quotes (in-text) have been provided for one source, but not in another instance. Two book chapters (bibliography) have been referenced in the bibliography in two different formats. | Major inconsistencies.<br>Poor and inconsistent referencing style used in-text and/or in the bibliography/ reference list.<br>Multiple formats for the same type of referencing have been used.<br>For example, the format for direct quotes (in-text) and/or book chapters (bibliography/ reference list) is different across multiple instances. |
| Technical correctness<br>Referencing format is technically correct throughout the submission.<br>Position of the reference: a reference is directly associated with every concept or idea.<br>For example, quotation marks, page numbers, years, etc. are applied correctly, sources in the bibliography/reference list are correctly presented. | Generally, technically correct with some minor errors.<br>The correct referencing format has been consistently used, but there are one or two errors.<br>Concepts and ideas are typically referenced, but a reference is missing from one small section of the work.<br>Position of the references: references are only given at the beginning or end of every paragraph.<br>For example, the student has incorrectly presented direct quotes (in-text) and/or book chapters (bibliography/reference list). | Technically incorrect.<br>The referencing format is incorrect.<br>Concepts and ideas are typically referenced, but a reference is missing from small sections of the work.<br>Position of the references: references are only given at the beginning or end of large sections of work.<br>For example, incorrect author information is provided, no year of publication is provided, quotation marks and/or page numbers for direct quotes missing, page numbers are provided for paraphrased material, the incorrect punctuation is used (in-text); the bibliography/reference list is not in alphabetical order, the incorrect format for a book chapter/journal article is used, information is missing e.g. no place of publication had been provided (bibliography); repeated sources on the reference list. |
| Congruence between in-text referencing and bibliography/reference list<br>All sources are accurately reflected and are all accurately included in the bibliography/reference list. | Generally, congruence between the in-text referencing and the bibliography/ reference list with one or two errors.<br>There is largely a match between the sources presented in-text and the bibliography.<br>For example, a source appears in the text, but not in the bibliography/reference list or vice versa. | A lack of congruence between the in-text referencing and the bibliography.<br>No relationship/several incongruencies between the in-text referencing and the bibliography/reference list.<br>For example, sources are included in-text, but not in the bibliography and vice versa, a link, rather than the actual reference is provided in the bibliography. |
| **In summary:** the recording of references is accurate and complete. | In summary, at least 80% of the sources are correctly reflected and included in a reference list. | In summary, at least 60% of the sources are incorrectly reflected and/or not included in reference list. |

Overall Feedback about the consistency, technical correctness and congruence between in-text referencing and bibliography:

______________________________________________________________________________________________

______________________________________________________________________________________________

**Question 1** **(Marks: 40)**

Jeff runs a local retail store in your neighbourhood. He has contracted you to create an interactive application that will assist him in increasing staff salaries. Create a class named Details that will contain get and set methods for an employee ID number, first name, surname and salary. Include a method called getUpdatedSalary() that will increase the staff members salary by 10%. In your main class include a static method named printDetails() that will produce an employee details report, also include a static method named salaryDeductions() that will display the employee deductions report if required.

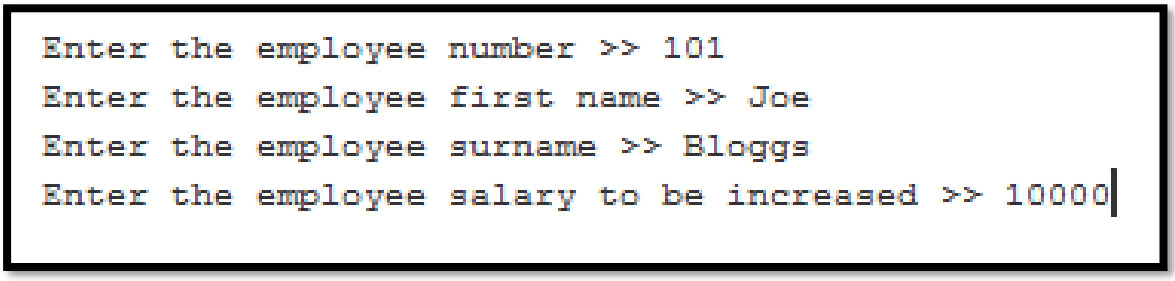
Notes — Below are the deduction percentages:

| **Deduction** | **Percentage** |
|---|---|
| Tax | 18% |
| Medical | 12.5% |
| Car Allowance | 8% |
| UIF | 2% |

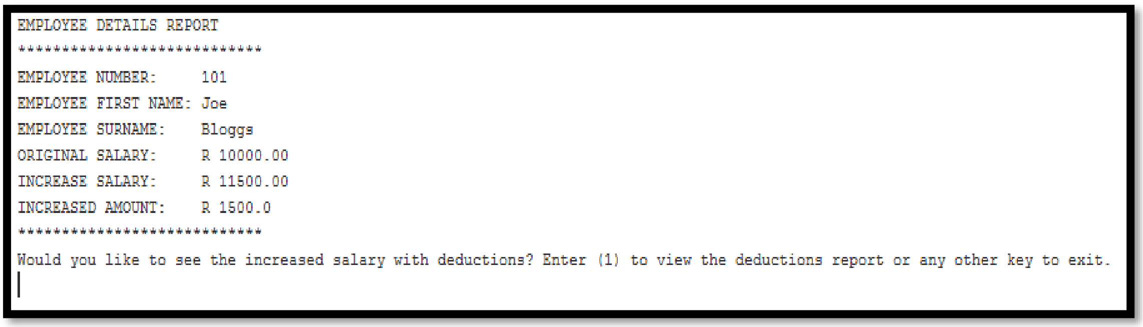
Hint:

- You may make use of your own initiative to improve the application and how it works.
- Classes | Methods | Decision Structures | Number Format, etc.

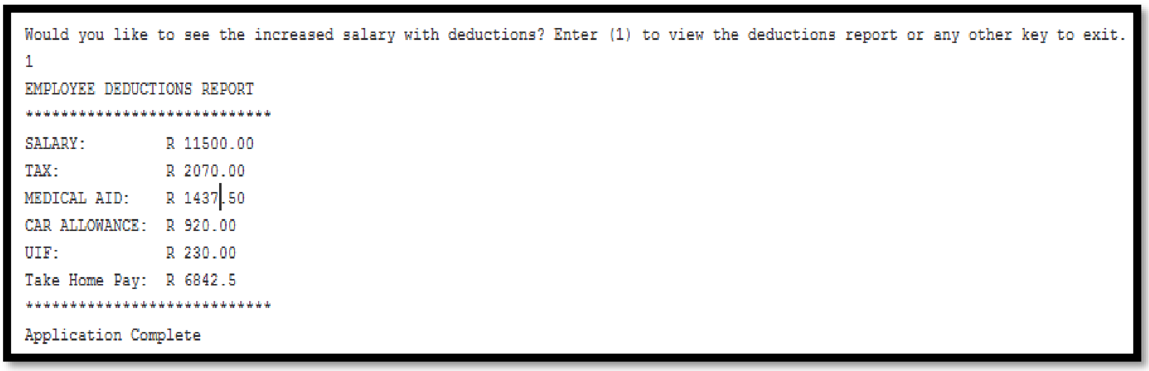
Sample



```
Enter the employee number >> 101
Enter the employee first name >> Joe
Enter the employee surname >> Bloggs
Enter the employee salary to be increased >> 10000
```



```
EMPLOYEE DETAILS REPORT
****************************
EMPLOYEE NUMBER:     101
EMPLOYEE FIRST NAME: Joe
EMPLOYEE SURNAME:    Bloggs
ORIGINAL SALARY:     R 10000.00
INCREASE SALARY:     R 11500.00
INCREASED AMOUNT:    R 1500.0
****************************
Would you like to see the increased salary with deductions? Enter (1) to view the deductions report or any other key to exit.
```



```
Would you like to see the increased salary with deductions? Enter (1) to view the deductions report or any other key to exit.
1
EMPLOYEE DEDUCTIONS REPORT
****************************
SALARY:         R 11500.00
TAX:            R 2070.00
MEDICAL AID:    R 1437.50
CAR ALLOWANCE:  R 920.00
UIF:            R 230.00
Take Home Pay:  R 6842.5
****************************
Application Complete
```

## Question 1 Mark Allocation

| **Marking Guideline** | **Mark** | **Examiner** | **Moderator** |
|---|---|---|---|
| **Variables Declared**<br>Excellent: Correct variables created — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct —one mark<br>Poor: Not attempted — 0 marks | **3** | | |
| **Imported Correct Libraries**<br>Excellent: Correct imports used — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **3** | | |

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Input and Output**<br>Excellent: Correct input and output used — five marks<br>Good: Correct but just a minor error — four marks<br>Developing: Attempted but not correct — between two and three marks<br>Poor: Not attempted — 0 marks | **5** | | |
| **Get and set methods created in second class**<br>Excellent: Get and set methods created in second class — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Poor: Not attempted — 0 marks | **4** | | |
| **Salary increased and returned correctly**<br>Excellent: Salary increase and returned correctly — two marks<br>Good: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **2** | | |
| **Decision structures (if statements or switch)**<br>Excellent: Correct decision statement used — five marks<br>Good: Correct but just a minor error — four marks<br>Developing: Attempted but not correct — between one and three marks<br>Poor: Not attempted — 0 marks | **5** | | |
| **String Formats**<br>Excellent: Correct formatting — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **3** | | |

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Good Programming Practise**<br>Good programming practise — five marks<br>Developing: Correct but just minor errors — between one and four marks<br>Poor: Not attempted — 0 marks | **5** | | |
| **Code Efficiency**<br>Excellent: code efficiency — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **3** | | |
| **Program Working**<br>Excellent: Program Working — five marks<br>Good: Correct but just a minor error — four marks<br>Developing: Attempted but not correct — between one and three marks<br>Poor: Not attempted — 0 marks | **5** | | |
| **Comments** | **2** | | |
| **TOTAL** | **40** | | |

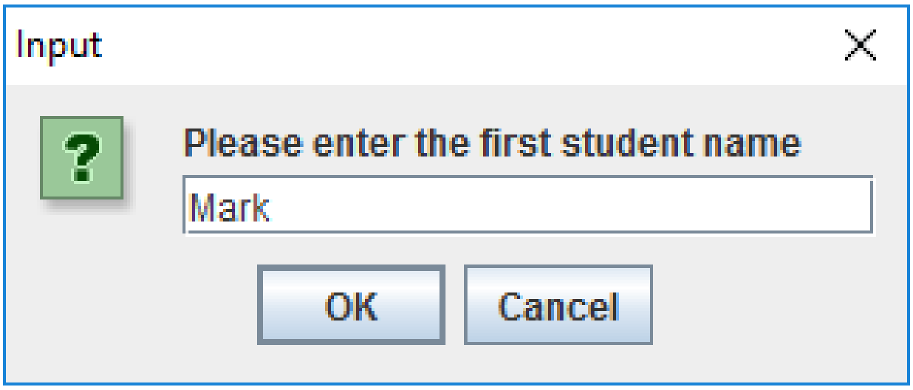
**Question 2** **(Marks: 20)**

The local high school you attended has asked you to create an interactive application that will assist the teachers to assign new students to a relevant sports house. You are required to prompt a user for three student names which will randomly be assigned to either the red, blue or white house. The teachers also require a random student number to be generated for the student, which consists of the house name and a maximum of four randomly generated numbers.

Hint:

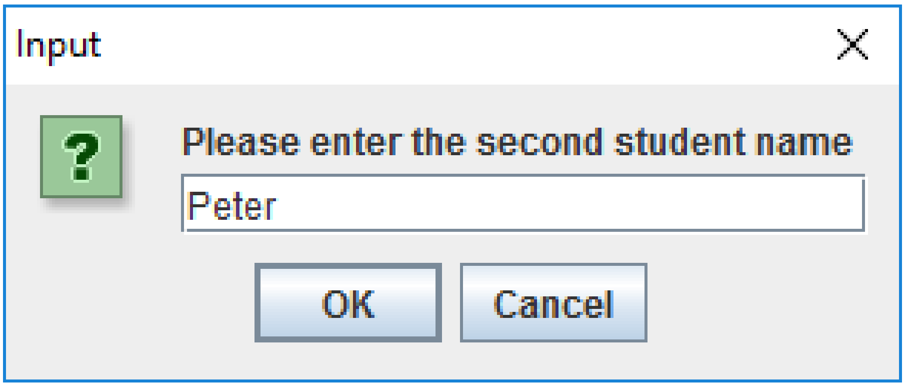
- You may make use of your own initiative to improve the application and how it works.
- There may be situations where all three students are added to the same house.

Sample



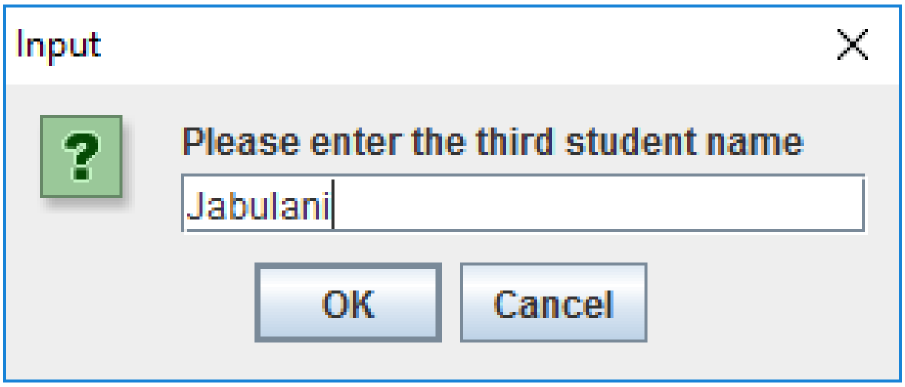
Please enter the first student name

Mark



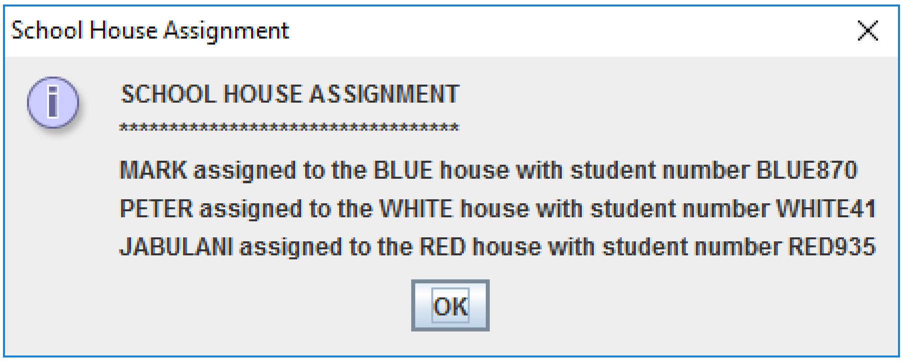
Please enter the second student name

Peter



Please enter the third student name

Jabulani



```
SCHOOL HOUSE ASSIGNMENT
************************************
MARK assigned to the BLUE house with student number BLUE870
PETER assigned to the WHITE house with student number WHITE41
JABULANI assigned to the RED house with student number RED935
```

**Question 2 Mark Allocation**

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Variables Declared** | **1** | | |
| **Imported Correct Libraries** | **1** | | |
| **Input and Output**<br>Excellent: Correct input and output used — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **3** | | |
| **Random House Generated**<br>Excellent: Random house generated correctly — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **2** | | |
| **Random Student House Number Generated**<br>Excellent: Random house number generated correctly — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **2** | | |
| **Good Programming Practise**<br>Good programming practise — five marks<br>Developing: Correct but just minor errors — between one and two marks<br>Poor: Not attempted — 0 marks | **3** | | |
| **Code Efficiency**<br>Excellent: code efficiency — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **3** | | |
| **Program Working**<br>Excellent: Program Working — three marks<br>Good: Correct but just a minor error — two marks<br>Developing: Attempted but not correct — 1 mark<br>Poor: Not attempted — 0 marks | **3** | | |

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Comments**<br>Excellent: Comments made — two marks<br>Good: Correct but just a minor error — one mark<br>Poor: Not attempted — 0 marks | **2** | | |
| **TOTAL** | **20** | | |

**Question 3** **(Marks: 40)**

Fast and Secure is a logistics company specialising in the delivery of products to Cape Town, Pretoria and Durban. The company outsources the delivery jobs to existing courier companies and only deals with the planning of the deliveries. Fast and Secure has hired the software development house you work for to create an application that will allow a user to select a town to post a package to, select a weight category, and finally select a relevant courier company to handle the delivery.

Create a class named Delivery_Details that will contain get and set methods for the town, weight, price and delivery company. In your main class must include a static method to handle the printing of the delivery report.

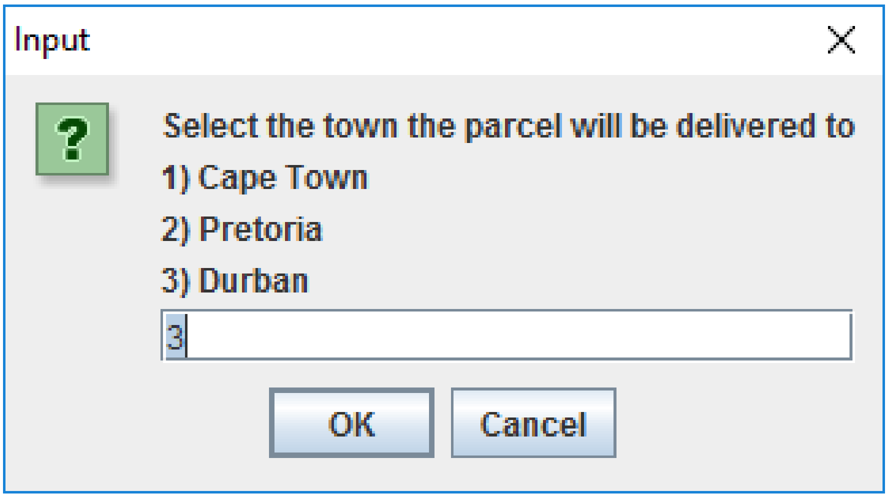
The cost for delivering a parcel is calculated according to the following:

| Parcel Weight (kg) | Cost for the delivery (R) |
|---|---|
| 0kg — 4kg | R300 |
| 5kg — 9kg | R500 |
| Over 10kg | R700 |

Hint:

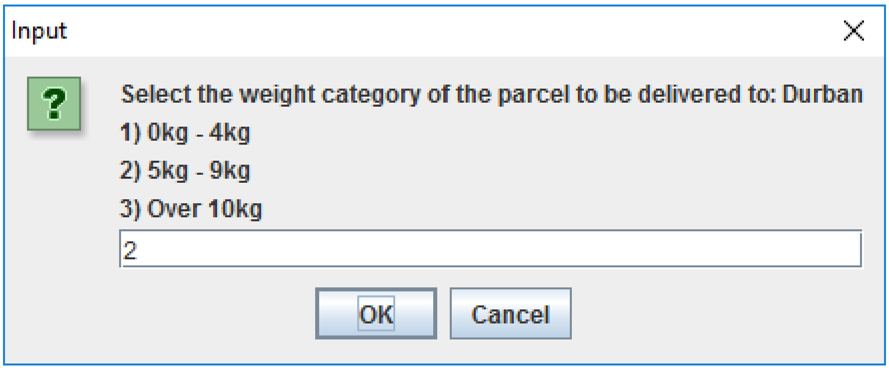
- You may make use of your own initiative to improve the application and how it works.
- Classes | Methods | Decision Structures | Number Format | System Date and Time, etc.

Sample



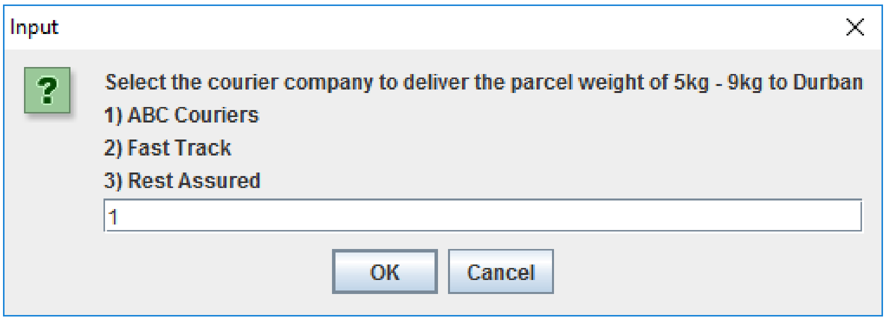
Select the town the parcel will be delivered to
1) Cape Town
2) Pretoria
3) Durban

3



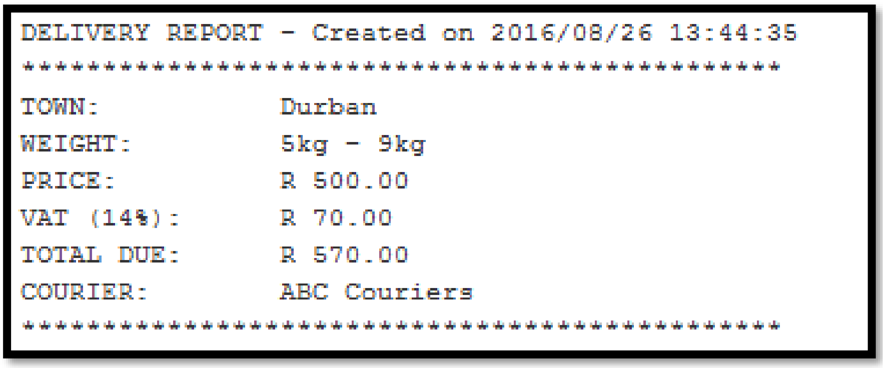
Select the weight category of the parcel to be delivered to: Durban
1) 0kg - 4kg
2) 5kg - 9kg
3) Over 10kg

2



Select the courier company to deliver the parcel weight of 5kg - 9kg to Durban
1) ABC Couriers
2) Fast Track
3) Rest Assured

1



```
DELIVERY REPORT - Created on 2016/08/26 13:44:35
***********************************************
TOWN:               Durban
WEIGHT:             5kg - 9kg
PRICE:              R 500.00
VAT (14%):          R 70.00
TOTAL DUE:          R 570.00
COURIER:            ABC Couriers
***********************************************
```

**Question 3 Mark Allocation**

| **Marking Guideline** | **Mark** | **Examiner** | **Moderator** |
|---|---|---|---|
| **Variables Declared**<br>Excellent: Correct variables created — two marks<br>Developing: Attempted but not correct — one mark<br>Not attempted — 0 marks | **2** | | |
| **Imported Correct Libraries**<br>Excellent: Correct imports used — three marks<br>Good: Correct but just a minor error — two marks<br>Attempted but not correct — one mark<br>Not attempted — 0 marks | **3** | | |
| **Input and Output**<br>Excellent: Correct input and output used — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Not attempted — 0 marks | **4** | | |
| **Get and set methods created in second class**<br>Excellent: Get and set methods created in the second class — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Not attempted — 0 marks | **4** | | |
| **Correct decision statement to determine the town**<br>Excellent: Correct decision statement used to determine the town — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Not attempted — 0 marks | **4** | | |

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Correct decision statement to determine the weight**<br>Excellent: Correct decision statement used to determine the weight — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Not attempted — 0 marks | **4** | | |
| **Correct decision statement to determine the delivery company**<br>Excellent: Correct decision statement used to determine the courier — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Not attempted — 0 marks | **4** | | |
| **Correct report generation**<br>Correct report generation created as per the example — four marks<br>Attempted but not correct — one mark<br>Not attempted — 0 marks | **4** | | |
| **Good Programming Practise**<br>Good programming practise — four marks<br>Developing: Correct but just minor errors — between one and three marks<br>Poor: Not attempted — 0 marks | **4** | | |
| **Code Efficiency**<br>Excellent: code efficiency — two marks<br>Developing: Attempted but not correct — one mark<br>Poor: Not attempted — 0 marks | **2** | | |

| Marking Guideline | Mark | Examiner | Moderator |
|---|---|---|---|
| **Program Working**<br>Excellent: Program Working — four marks<br>Good: Correct but just a minor error — three marks<br>Developing: Attempted but not correct — between one and two marks<br>Poor: Not attempted — 0 marks | **4** | | |
| **Comments**<br>Excellent: Comments made — one mark<br>Poor: Not attempted — 0 marks | **1** | | |
| **TOTAL** | **40** | | |
| | | | |