**LIFECHOICES CODING ACADEMY**

**OOP CHALLENGE**

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| **MODULE** | **OUTCOMES** | **DESCRIPTION** |
| 7 | 1-5 | **Object Oriented Programming** |

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| **EXAMINER** | | GP DZVAPAPATSVA | | | **MODERATOR** | T TSOTETSI | |
| **DATE** |  | | **DURATION** | 4 Hours | | **TOTAL MARKS** | 50 |

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| **SUBJECT:** | **PYTHON PROGRAMMING** |
| **TIME ALLOCATION:** | **4 HOURS** |
| **EXAMINER:** | **GP DZVAPATSVA** |
| **MODERATOR:** | **T TSOTETSI** |

**TOPICS**

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| Topic 1: Object Oriented Programming using Python |

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| **TIME: 4 HOURS**  **MARKS: 50** |

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**INSTRUCTIONS AND INFORMATION**

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| 1.  2. | Answer ALL the questions.  Read ALL the questions carefully. |  |  |

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| **QUESTION 1** |  |  |

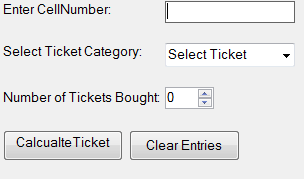
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| You are expected to design a user interface for the following application called Easy Ticket that will help the organisation to sell tickets easily by entering a client’s cellphone number, selecting the tickets category (soccer, movie and theatre) and selecting the number of tickets requested.  The application will calculate the amount payable for the tickets and display the amount of tickets ranges as follows:   * Soccer R40,00 each * Movie R75,00 each * Theater R100,00 each |

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| Below is the IPO chart for the problem. |  |  |

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| |  |  |  | | --- | --- | --- | | **INPUT** | **PROCESSING** | **OUTPUT** | | cellnumber  Category  nr\_tickets | AmountPayable=nr\_tickets x tPrice + 14% VAT | AmountPayable  Tickets\_reserved | |

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| The following STEPS explain how to use the program to calculate the Ticket sale: |  |  |

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| STEP 1 | Run the program and enter client ticket as FIGURE 1.1 |  |  |



*Figure 1.1*

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| STEP 2 | Select the ticket category and number of tickets as in FIGURE 1.2.    Figure 1.2 |  |  |

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| STEP 3 | | |
| Click on the ticket price button to calculate and display the Amount Payable for the selected ticket category as in FIGURE 1.3 below |  |  |

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|  | Figure 1.3 |

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| Figure 1.4 below is a screen print of what the user interface might look like. Please take note, you can improve the design to indicate your understanding of tkinter module.    Figure 1.4 |  |  |

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|  | Below is the class diagram (clsTicketSales)   |  | | --- | | clsTicketSales | | \_cellnumber  \_tprice  \_nr\_tickets | | +CalcPrepayment() | |  |  |

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| 1,1 | Design and interface such as one shown on Figure 1.4 called TicketSales using tkinter and follow the instructions to complete the program. Make a goog looking interface to show your design skills. |  | 10 |
| 1.2 | Add a class called clsTicketSales to the project.  Add your firstname and surname to the program as a comment. Add the following code to the ticketSales class named clsTicketSales: |  |  |

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|  | 1.2.1 | (a) | Define the variables for the clsTicketsales class |  | (6) |

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| 1.3 |  | Write the code to create the following public properties for the TicketSales class: each referring to set and retrieve the values of the private variables you defined for question 1.1.1   1. cellNumber() 2. price() 3. nr\_tickets()   Include error trapping that will throw an error message exception in cases where the \_nr\_tickets field is to be set to zero.  An appropriate exception/error message should be displayed |  | (3)  (5) |

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|  | 1.3.1 | Write the code to include a default constructor for the class |  | (2) |

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| 1.4 | Write the code to include the CalcPrepayment() method for the Ticketsales class. This method calculates and returns the amount due for the number of tickets bought including VAT at 14% (Refer to the IPO chart) |  | (10 | |

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| 1.5 | Add the following program code:  Instantiate an object as a public instance of the clsTicketSales class. |  | (5) |
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| 1.6 | | Add the code to the click Event of the btnCalculateSales button: | |  | | |
|  | | a)Determine which ticket category has been selected from the combobox.  Assign the values from the controls to the appropriate object properties and assign the correct price per ticket. | | | | (4) |
| 1.7 | | b) Call the CalcPrepayment() method of the objTicket class to calculate the amount payable of the ticket and display the answer in the appropriate labels. Refer to the example screenshot Figure 1.4.  Package the program to an executable. Change the text in the title bar of form to Ticket Sales.    Run the program, enter the following test data.   |  |  | | --- | --- | | CellNumber | 0835456666 | | Category | Movie | | No\_ticket | 4 | | |  | | (5) |
|  |  | |  | | **[]** | |