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| **Instructions** | |
|  | This is an open book exam; you can take online help to check the functions syntax but any evidence of copying from third party resources or plagiarised contents will lead to suspension and other stringent actions. All the answers must be paraphrased and customised. |
|  | You can attempt any 10 from the below 15 questions. |
|  | You may use any of the editors to execute the codes given in the question. |
|  | Answers should be brief and to the point. You may submit a zipped folder with;   1. Word document containing complete answers, and 2. Well commented scripts, and/or, 3. Well commented Jupyter Notebook(s), and/or, 4. The converted HTML file of your notebook. |

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| **Section A** | | |
| **Instructions** | Test the code before submitting. | **Marks** |
| Q1. | Fill in the missing pieces.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q2. | Create a new list without modifying the original one.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q3. | Create a merged and sorted list.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q4. | Fill in the blanks.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q5. | Format string based on existing variables: Create `sentence` by using `verb`, `language`, and `punctuation` and any other strings you may need.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png |  |

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| Q6. | Join the following two tables in such a way that all movies should be present, no movie should be absent. The print head and tail of the merged data frame.  **Table 1:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Movie | Lead Studio | Rotten Tomatoes | Audience Score | Story | | Spider-Man 3 | Sony | 61 | 54 | Metamorphosis | | Shrek the Third | Paramount | 42 | 57 | Quest | | Transformers | Paramount | 57 | 89 | Monster Force | | Pirates of the Caribbean: At World's End | Disney | 45 | 74 | Rescue | | Harry Potter and the Order of the Phoenix | Warner Bros | 78 | 82 | Quest | | I Am Legend | Warner Bros | 69 | 69 | Quest | | The Bourne Ultimatum | Universal | 93 | 91 | Pursuit | | National Treasure: Book of Secrets | Disney | 31 | 72 | The Riddle | | Alvin and the Chipmunks | Fox | 26 | 73 | Comedy | | 300 | Warner Bros | 60 | 90 | Sacrifice | | Ratatouille | Disney | 97 | 84 | Transformation | | The Simpsons Movie | Fox | 90 | 78 | Maturation | | Wild Hogs | Disney | 14 | 72 | Transformation | | Knocked Up | Universal | 91 | 83 | Love | | Juno | Fox | 94 | 89 | Maturation | | Rush Hour 3 | Warner Bros | 20 | 68 | Rescue | | Live Free or Die Hard | Fox | 79 | 86 | Rescue |   **Table 2:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Movie | Genre | Theatres Open Week | Opening Weekend | BO Avg Open Weekend | | Spider-Man 3 | Action | 4252 | 151.1 | 35540 | | Shrek the Third | Animation | 4122 | 121.6 | 29507 | | Transformers | Action | 4011 | 70.5 | 17577 | | Pirates of the Caribbean: At World's End | Action | 4362 | 114.7 | 26302 | | Harry Potter and the Order of the Phoenix | Adventure | 4285 | 77.1 | 17998 | | I Am Legend | Thriller | 3606 | 77.2 | 21411 | | The Bourne Ultimatum | Thriller | 3660 | 69.3 | 18929 | | National Treasure: Book of Secrets | Thriller | 3832 | 44.8 | 11686 | | Alvin and the Chipmunks | Animation | 3475 | 44.3 | 12750 | | 300 | Action | 3103 | 70.9 | 22844 | | Ratatouille | Animation | 3940 | 47 | 11935 | | The Simpsons Movie | Comedy | 3922 | 74 | 18877 | | Wild Hogs | Comedy | 3287 | 39.7 | 12077 | | Knocked Up | Comedy | 2871 | 30.7 | 10690 | | Juno | Comedy | 1019 | 10.6 | 10436 | | Rush Hour 3 | Action | 3778 | 49.1 | 12996 | | Live Free or Die Hard | Action | 3408 | 33.4 | 9791 | | Fantastic Four: Rise of the Silver Surfer | Action | 3959 | 58 | 14663 | | 10 |
| Q7. | Read the Supermarket.csv file and answer the following questions.   * Top 5 product codes by Amount * Top 20 product codes by Receiving cash * Top 5 cashiers by received cash and bottom 5 cashiers by Amount * Product codes for which Amount is greater than average Received cash after 10th May 2018 * Average daily sales Amount vs Maximum Daily Sales Amount.  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Product Code | Date | Amount | Received Cash | Cashier Name | | Product code | Daily Date | Sales Amount | Cash Received | Agent Name | | 10 |
| Q8. | Fill in the blanks  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q9. | Create `Dog` class which has the following specification:   * Dogs consume their energy by barking and gain energy by sleeping * A fresh `Dog` instance has 10 units of energy * `Dog` has a method `sleep` which gives 2 units of energy * `Dog` has a method `bark` which consumes 1 unit of energy * `Dog` has a method `get energy` which returns the amount of energy left   file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q10. | Create your first test case.  There is an implementation for the `get\_divisible\_by\_five` function in the cell below. Your task is to create a test case for this function to verify that it works correctly.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |

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| Q11. | Create a named tuple.  Create a named tuple `Car` which has fields `price`, `mileage`, and `brand`.  file:///var/folders/n8/s3ywnm4s4bl95qdk8f4bntkw0000gn/T/com.microsoft.Word/screenshot.png | 10 |
| Q12. | On Games   * Write a function that accepts the name of a game and prints a statement such as, "I like playing chess!" * Give the argument a default value, such as `chess`. * Call your function at least three times. Make sure at least one of the calls includes an argument, and at least one call includes no arguments. | 10 |
| Q13. | On Favourite Movie   * Write a function that accepts the name of a movie, and prints a statement such as, "My favorite movie is The Princess Bride." * Give the argument a default value, such as `The Princess Bride`. * Call your function at least three times. Make sure at least one of the calls includes an argument, and at least one call includes no arguments. | 10 |
| Q14. | Favorite Colors   * Write a function that takes two arguments, a person's name and their favorite color. The function should print out a statement such as "Hillary's favorite color is blue." * Call your function three times, with a different person and color each time. | 10 |
| Q15. | Phones  - Write a function that takes two arguments, a brand of phone and a model name. The function should print out a phrase such as "iPhone 6 Plus". | 10 |
| **Attachment** |  |  |

\*\*\*\*\*\*\*End\*\*\*\*\*\*\*