1. **Introduction**
   1. ***Test Objectives***

**The objectives of this testing is to validate some of the methods in the system working correctly and their isolation.**

* 1. ***Scope Of Testing***

**The unit test include the “saleByAge” method int and all the gets() and sets() methods in “passenger” class. Other classes like “Flight” is excluded because it’s structure and contents are similar to “passenger” class. Given “TicketSystem” class, due to its fields are not public, they are not able to work in another package, so it si also exclued.**

1. **Approach**

* **All unit tests will be automated using Junit5**
* **Each test cases will be isolated, ensuring no dependencies on external system.**
  1. ***Assumption/Constraints***
     1. **Assumptions**
* **All the planned methods will be ready for unit test on March 21, 2025.**
* **The negative intergal of age will not be successfully tested because of the code provided**
  + 1. **Constraints**
* **After the combination of buyticket class and chooseticket class The Access Modifiers of fields in the new class prevents us to test their related methods in anther package**
  1. ***Test Tools***

**Junit5 is applied in this unit testing.**

1. **Plan**
   1. ***Test Team***

|  |  |  |
| --- | --- | --- |
| **Name** | **Level of involvement** | **Contributions** |
| **Sen Cao** | **3 hrs/wk** | **Create the Github repository, create the maven project, combine BuyTicket class with ChooseTicket class into one class, write 1 test case, write 1 section of test plan** |
| **Ruwang Ling** | **3 hrs/wk** | **Write 9 test cases, write 2 sections of test plan, submit the assignment files** |
| **Tianze Shen** | **3 hrs/wk** | **Modified the pom.xml, write 2 test cases, write the file indicating contribution made by team members, write 1 section of test plan** |

* 1. ***Test Environment***

**Hardware**

**(1) iMAC**

**Apple M3 Pro**

**18GB of 1600MHz LPDDR3 onboard memory**

**500GB (5400-rpm) hard drive**

1. **MECHREVO**

**AMD Ryzen 7 8845H w/ Radeon 780M Graphics 3.80 GHz**

**RAM 24GB DDR5 5600MHz**

**(1) LENOVO**

**AMD Ryzen 7 8845H w/ Radeon 780M Graphics 3.80 GHz**

**RAM 32.0 GB DDR5 5600MHz**

**Network**

**WLAN: eduroam**

**Software**

**IntelliJ IDEA**

1. **Test Procedures**
   1. ***Test Execution***
      1. ***Test Cases***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test Number** | **Test Name** | **Purpose of Test** | **Input** | **Expected Output** | **Actual**  **Output** | **Status** |
| **0001** | **testPriceWhenPassengerIsBetween1And15** | **validate ticket price when passenger is between 1 and 15** | **14** | **5** | **5** | **Pass** |
| **0002** | **testPriceWhenPassengerOver60** | **validate ticket price when passenger is over 60** | **60** | **0** | **0** | **Pass** |
| **0003** | **testPriceWhenPassengerBetween15And60** | **validate ticket price when passenger is between 15 and 60** | **15** | **11** | **11** | **Pass** |
| **0004** | **testEmail** | **Test set and get method of Email** | **test@example.com** | **test@example.com** | **test@example.com** | **Pass** |
| **0005** | **testFirstName** | **Test set and get method of First Name** | **John** | **John** | **John** | **Pass** |
| **0006** | **testSecondName** | **Test set and get method of Second Name** | **Doe** | **Doe** | **Doe** | **Pass** |
| **0007** | **testPhoneNumber** | **Test set and get method of Phone Number** | **+123456789** | **+123456789** | **+123456789** | **Pass** |
| **0008** | **testCardNumbr** | **Test set and get method of Card Number** | **1234-5678-9012-3456** | **1234-5678-9012-3456** | **1234-5678-9012-3456** | **Pass** |
| **0009** | **testSecurityCode** | **Test set and get method of Security Code** | **123** | **123** | **123** | **Pass** |
| **0010** | **testPassport** | **Test set and get method of Passport** | **AB1234567** | **AB1234567** | **AB1234567** | **Pass** |
| **0011** | **testGender** | **Test set and get method of Gender** | **Male** | **Male** | **Male** | **Pass** |
| **0012** | **testAge** | **Test set and get method of Age** | **25** | **25** | **25** | **Pass** |