**Parcel Delivery System Application**

**Requirement Specification**

1. **Project Scope**

There will be a small standalone application to be implemented using C# programming language. The features that we need to add in our parcel delivery routing system application, will be listed as below:

* Estimated Delivery Time – Deliver the items from origin country routed to designated country based on time destination. It will be calculated based on origin country and destination country and display the estimated no of working delivery days as well as the start of the delivery date and time and end of delivery date and time.
* Postage Charge Calculator – The charge cost calculation will be based on three factors such as estimated delivery time, delivery service and weight of the items in grams
* Currency Converter – \*Type here\*
* Intermediate Courier – \*depends on which day to deliver (For example, Singapore is expected to start deliver parcels to USA on Thurs but it is not available in DHL service Singapore, so use Malaysia immediate courier to temporary keep on Thurs and immediate courier sent it to USA on Fri by next 3 ~ 5 days to reduce the delivery delay. Suggested by Ezra\*

1. **Functional Requirements**

**2.1 Estimated Delivery Time**

2.1.1 Upon selecting the name of origin country and number of postal code under a drop down list, it must allow the user to choose the correct country and postal code or else show the error message.  
  
2.1.2 Upon inputting the name of designated country and number of postal code, it must allow the user to type in the correct country and postal code or else show the error message.

2.1.3 Upon selecting the date picker and time combo selector for the start of delivery, it must allow the user to choose the present date and time or future date and time or else pop up the error message.

2.1.4 Performing calculation to output the correct result after identifying the three required inputs such as the origin country, designated country and present/future day.

2.1.5 Reset button will reset all inputs to default ones.

**2.2 Postage Charge Calculator**

2.2.1 The estimated delivery time, origin and destination country will be displayed in read-only after calculating estimated delivery time,

2.2.2 Upon inputting the weight in grams, it must allow the user to type in the number or else pop up the error message.

2.2.3 Upon selecting the delivery service picker, it must allow the user not to choose empty; otherwise the error message will be popped up.

2.2.4 Performing calculation to output the correct result after identifying the three required inputs such as estimated delivery time, weight and delivery service.

2.2.5 Reset button will reset all inputs to default ones.

**2.4 Database**

2.3.1 The database should store the details that were inputted by the users.

* Details should include the origin of the country, destination, weight of the item, date of start delivery, estimated date of end delivery and delivery service.

2.3.2 The database should allow the staff to manually input and do not change the database.

2.3.3 The software should follow a standardised 24 hour clock format.

2.3.4 The software should allow the staff to access the database 7 days a week.

1. **Non-Functional Requirements**

**3.1 Performance Requirements**3.1.1 Time bound – The system should handle a minimum of 10 transactions per second.

**3.2 Reliability**

3.2.1 The system must be available for service when request by users (99%).

**3.3 Interface Requirements**

3.3.1 The system must be user-friendly (display informative error messages).  
  
3.3.2 The system should promote reusability of the code

1. **User Interface Design Requirements**

**4.1 Estimated Delivery Time Interface and Postage Charge Calculator (Draft Work)**

Figure 1.0 show the simple user interface that associates (estimated delivery time, postage charge calculator)

**Note: Local/Overseas Postage Rates button is used for reference list (Part 6)**

Local/Overseas Postage Rates

**Estimated Delivery Time**

**Postage Charge Calculator**

**Estimated Delivery Time**

**Origin Country:   
Destination Country:   
Date (DD/MM/YYYY):**

Reset

Calculate

Close

Local/Overseas Postage Rates

**Postage Charger Calculator**

Close

**Estimated Delivery Time**

**Postage Charge Calculator**

**Estimated Delivery Time:  Orig Country:  
Weight in grams:  Dest Country:   
Delivery Service:  Inter Courier:**

**Currency:**

Reset

Calculate

Close

**4.1 Estimated Delivery Time Interface and Postage Charge Calculator (Screenshot Taken)**

Figure 1.0 show the simple user interface that associates (estimated delivery time, postage charge calculator)

**Note: Local/Overseas Postage Rates button is used for reference list (Part 6)**

**\*\*\* To be inserted in after adding immediate courier and currency converter tab from Stanley\*\*\*\***

1. **Data Requirements**

5.1 Origin Country name is a string of alphabets and is maximum 10 characters long.

5.2 Destination Country name is a string of alphabets and is maximum 10 characters long.

5.3 Date is recorded in DD/MM/YYYY format and should be more than present day.

5.4 Estimated delivery time under Postage Charge tab page should be auto display in number of days after clicking on the calculate button under estimated delivery time. section.

5.5 Origin and Destination country under Postage tab page should be auto display in a string of alphabets after clicking on the calculate button under estimated delivery time.

5.6 Intermediate Country under Postage Tab page should be auto display in a string of alphabets after clicking the calculate button under immediate courier.

5.7 Currency name is a string of alphabets and is maximum of 3 characters long.

5.8 Weight should be measured as the integer with the maximum of 10,000.

5.9 Delivery Service should be displayed in alphanumeric string, 3 to 10 characters long.

1. **Local/Oversea Rates Database (Three countries will be selected for our project.)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Origin** | **Destination** | **Delivery**  **Service** | **Weight-step**  **Not Over**  **(max 2kg)** | **Letters,**  **Printed Papers &**  **Small Packets** | **Available Days for Delivery** | **Delivery Time (estimated working days)** |
| Singapore | Singapore | DHL | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | All days | 1 |
| Singapore | Malaysia | DHL | 20g  50g  100g  per additional 100g | 45¢  55¢  85¢  $1.00 | Mon, Wed, Thurs,Sat | 1 |
| Singapore | USA | DHL | 20g  50g  100g  per additional 100g | 60¢  75¢  $1.00  $5.00 | Tues, Wed, Fri, Sat | 5 |
| **-------------** | **---------------** | **-------------** | **------------------------** | **-------------** | **-------------** | **-------------** |
| Singapore | Singapore | Fedex | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | All days | 1 |
| Singapore | Malaysia | Fedex | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | Mon, Tues, Thurs,Sun | 2 |
| Singapore | USA | Fedex | 20g  50g  100g  per additional 100g | 60¢  75¢  $1.00  $4.00 | Tues, Wed, Sat, Sun | 4 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| Singapore | Singapore | SpeedPost | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | All days | 1 |
| Singapore | Malaysia | SpeedPost | 20g  50g  100g  per additional 100g | 35¢  50¢  80¢  $1.00 | Mon, Wed, Thurs, Sat | 1 |
| Singapore | USA | SpeedPost | 20g  50g  100g  per additional 100g | 60¢  75¢  $3.00  $6.00 | Tues, Wed, Fri, Sun | 4 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| Malaysia | Malaysia | DHL | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | All days | 1 |
| Malaysia | Singapore | DHL | 20g  50g  100g  per additional 100g | 55¢  60¢  75¢  $1.00 | Mon, Wed, Thurs,Sat | 2 |
| Malaysia | USA | DHL | 20g  50g  100g  per additional 100g | 60¢  75¢  $1.00  $5.00 | Tues, Wed, Fri, Sat | 5 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| Malaysia | Malaysia | Fedex | 20g  50g  100g  per additional 100g | 35¢  45¢  75¢  $1.00 | All days | 1 |
| Malaysia | Singapore | Fedex | 20g  50g  100g  per additional 100g | 55¢  50¢  75¢  $1.00 | Mon, Tues, Thurs,Sun | 2 |
| Malaysia | USA | Fedex | 20g  50g  100g  per additional 100g | 50¢  85¢  $1.10  $4.00 | Tues, Wed, Sat, Sun | 7 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| Malaysia | Malaysia | SpeedPost | 20g  50g  100g  per additional 100g | 30¢  45¢  75¢  $1.00 | All days | 1 |
| Malaysia | Singapore | SpeedPost | 20g  50g  100g  per additional 100g | 45¢  55¢  85¢  $1.00 | Mon, Wed, Thurs, Sat | 2 |
| Malaysia | USA | SpeedPost | 20g  50g  100g  per additional 100g | 50¢  85¢  $1.10  $4.50 | Tues, Wed, Fri, Sun | 6 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| USA | USA | DHL | 20g  50g  100g  per additional 100g | 45¢  55¢  85¢  $1.00 | All days | 1 |
| USA | Singapore | DHL | 20g  50g  100g  per additional 100g | 65¢  70¢  75¢  $4.00 | Mon, Wed, Thurs,Sat | 4 |
| USA | Malaysia | DHL | 20g  50g  100g  per additional 100g | 50¢  85¢  $2.00  $4.00 | Tues, Wed, Fri, Sat | 5 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| USA | USA | FedEx | 20g  50g  100g  per additional 100g | 45¢  65¢  85¢  $1.00 | All days | 1 |
| USA | Singapore | FedEx | 20g  50g  100g  per additional 100g | 65¢  80¢  95¢  $3.00 | Mon, Tues, Thurs,Sun | 5 |
| USA | Malaysia | FedEx | 20g  50g  100g  per additional 100g | 65¢  85¢  $1.00  $4.00 | Tues, Wed, Sat, Sun | 4 |
| ------------- | --------------- | ------------- | ------------------------ | ------------- | ------------- | ------------- |
| USA | USA | SpeedPost | 20g  50g  100g  per additional 100g | 45¢  55¢  85¢  $1.00 | All days | 1 |
| USA | Singapore | SpeedPost | 20g  50g  100g  per additional 100g | 55¢  80¢  $2.00  $4.00 | Mon, Wed, Thurs, Sat | 5 |
| USA | Malaysia | SpeedPost | 20g  50g  100g  per additional 100g | 50¢  85¢  $2.00  $4.00 | Tues, Wed, Fri, Sun | 5 |

**\*\* Note: All prices will be in US dollars.**