**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.
* Report – To generate the report after performing the estimated delivery time and postage charge calculator.
* Currency Converter – \*Type here\*
* Immediate 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 pop up 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 pop up 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 will be displayed in read-only after calculate 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.

**2.3 Report Generator**

2.3.1 The software should be able to generate a report to let the customer to review at the point of reviewing.

2.3.2 Upon pressing ms word button, it will generate the report and export to ms word.

2.3.3 Upon pressing pdf button, it will generate the report and export to pdf.

2.3.4 The report should state the details to be displayed.

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

**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

**Generate Report**

**Estimated Delivery Time**

**Postage Charger Calculator**

**Estimated Delivery Time**

**Origin Country: Orig Postal Code:  
Destination Country: Dest Postal Code:  
Date (DD/MM/YYYY): Time (HH:MM):**

Reset

Calculate

Close

**Estimated Delivery Time**

Local/Overseas Postage Rates

**Generate Report**

**Postage Charger Calculator**

Close

**Postage Charge Calculator**

**Estimated Delivery Time:   
Weight in grams:   
Delivery Service: **

Reset

Calculate

Close

**Generate Report**

**Postage Charger Calculator**

Local/Overseas Postage Rates

**Estimated Delivery Time**

Close

**Report**

**Report Generator will generate both edt and pcc results and export to either ms word or pdf.**

**Export to MS Word Export to MS Word**

PDF

Word

**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\*\*\*\***

1. **Data Requirements**

5.1 Identifier ID should be incremented in order.

5.2 Identifier ID should be stored as numbers, 999 characters long.

5.3 Origin Country name is a string of alphabets and is maximum 3 characters long.

5.4 Postal Code of origin country should be stored as integer, 5 to 6 characters long depending on which origin country is.

5.5 Destination Country name is a string of alphabets and is maximum 3 characters long.

5.6 Postal Code of destination country should be stored as numbers, 5 to 6 characters long depending on which destination country is.

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

5.8 Time is recorded in 24 hour format, HH:MM, in local time.

5.9 Estimated delivery time should be auto display in number of days after clicking on the calculate button under estimated delivery time section.

6.0 Weight should be measured as the integer with the maximum of 2,000.

6.1 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** | **Origin**  **Postal Code** | **Destination** | **Delivery**  **Service** | **Weight-step**  **Not Over**  **(max 2kg)** | **Letters,**  **Printed Papers &**  **Small Packets** | **Available Days for Delivery** | **Delivery Time (estimated working days)** |
| Singapore | 758244  417844  069120  417943  228208  159546  397799  556827  238875  787601  437107  148582  239875  408933  208569  417864  160092  408706  569535  729659  628971  159101  218568  349313  218055  218115  319075  408936  349483  577197  416175 | 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 | 81800  47100  43000  68100  93350  51200  93400  46300  47500  40150  55200  30250  68000  18000  46320  88300  81100  11500  93300  47301  81120  30000  97000  30250  47302  46150  31500  14000  47620  11520  46000  89500 | 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 | 11738  92111  92105  92118  92108  92103  92014  92130  92126  92123  92128  10022  10016  10037  10033  10019  10025  10002  10035  10034  10040  20006  20016  20001  20007  20006  20003  60622  60609  60804  60647  60618 | 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.**