Deliverable F - Prototype 1

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November 4, 2021

Abstract

During this deliverable, the group, using the information gathered from the second client meeting, created 2 prototypes. These created prototypes are simple in design and were made as a starting point, allowing for further development to be made once more feedback is given from the company Zafin.

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1. Introduction

During this deliverable, the group had to work creating simple prototypes to show to the company Zafin, following the curated design criteria made, as well as the feedback given from the second meeting with Zafin.

2. Prototypes

In this section, the prototypes that have been created will be further explained on how they work, and how they were conceptualized.

2.1 Prototype 1: Conversion Between PC Optimum and Air Miles

This prototype was created as a simple code in C programming. C programing was used as it is more accessible for the group, and, in terms of cost, would not cost the group any finances.

For this program, some basic research had to be done to get the theoretical values of PC Optimum Points, (PC Points), and Air Mile Points, (Air Miles). Through this research, it was found that the base rate of PC Points was 10 points per $1. Then for Air Miles, it was found that 1 Air Miles is equivalent to $0.12 - $0.194. (It should be noted that the base rate of PC Points was used, as the value of points gathered from purchases differs from location to location).

Using these values, simple calculations were made to create an equation to be used in the conversion;

$$Base\ Rate\ of\ PC\ Points\ =\ 10\ points/\$1$$
$$1\ Air\ Miles\ =\ \$0.12\ -\ \$0.194$$
$$Midpoint\ between\ Air\ Miles\ =\ (0.12\ +\ 0.194)\ \div\ 2$$
$$=\ 0.314\ \div\ 2$$
$$Midpoint\ between\ Air\ Miles\ =\ 0.157$$
$$Equation\ to\ find\ PC\ Points\ gained\ =\ x\ \cdot\ 10,$$ *where, x, is the amount of money spent.*
$$Conversion\ between\ PC\ Points\ and\ Air\ Miles\ =\ \frac{y}{10}\ \cdot\ 0.157,$$ *where, y, is the number of PC Points.*
$$Conversion\ between\ Air\ Miles\ and\ PC\ Points\ =\ \frac{z}{0.157}\ \cdot\ 10,$$ *where, z, is the number of Air Miles.*

Using the equations made, a simple *else...if,* code was used, as seen bellow;

```c
// C programing code; created by Nina Blaney, November 02, 2021.
// STUDENT ID - 300234634
// GNG1103 [A]

#include <stdio.h>
#include <stdlib.h>

int main()
{
    int option;

    printf("\t\t1. PC TO AIR MILES\n\n");
    printf("\t\t2. AIR MILES TO PC\n\n");

    printf("Please select an option: ");
    scanf("%d", &option);
    printf("\n");
    if(option==1)
    {
        int PC, AirM;
        printf("Enter PC Points: ");
        scanf("%d", &PC);

        AirM=(PC/10)*0.157;
        printf("\n");
        printf("Air Miles coverted: %d\n", AirM);
    }
    else if(option==2)
    {
        int AIR, pc;
        printf("Enter Air Mile: ");
        scanf("%d", &AIR);

        pc= (AIR/0.157)*10;
        printf("\n");
        printf("PC points coverted: %d\n", pc);
    }
    else
    {
        printf("wrong input");
    }
    return 0;
}

```

Figure 2.1: Code created in the application, Code Blocks.

Using this code, two trials were carried out, both from going to Air Miles, and going to PC Points. During these trials, random numbers were used. Below are the outcomes of the trials. The trials stopped when all 4 total trials were completed successfully, without any problems.

```
                1. PC TO AIR MILES

                2. AIR MILES TO PC

Please select an option: 1

Enter PC Points: 50000

Air Miles coverted: 785

Process returned 0 (0x0)   execution time : 7.467 s
Press any key to continue.
```

Figure 2.2: Trial 1: PC Points to Air Miles | 50 000 as value.

```
                1. PC TO AIR MILES

                2. AIR MILES TO PC

Please select an option: 1

Enter PC Points: 169780

Air Miles coverted: 2665

Process returned 0 (0x0)   execution time : 6.342 s
Press any key to continue.
```

Figure 2.3: Trial 2: PC Points to Air Miles | 169 780 as value.

```
                1. PC TO AIR MILES

                2. AIR MILES TO PC

Please select an option: 2

Enter Air Mile: 101234

PC points coverted: 6448025

Process returned 0 (0x0)   execution time : 16.917 s
Press any key to continue.
```

Figure 2.4: Trial 3: Air Miles to PC Points | 101 234 as value.

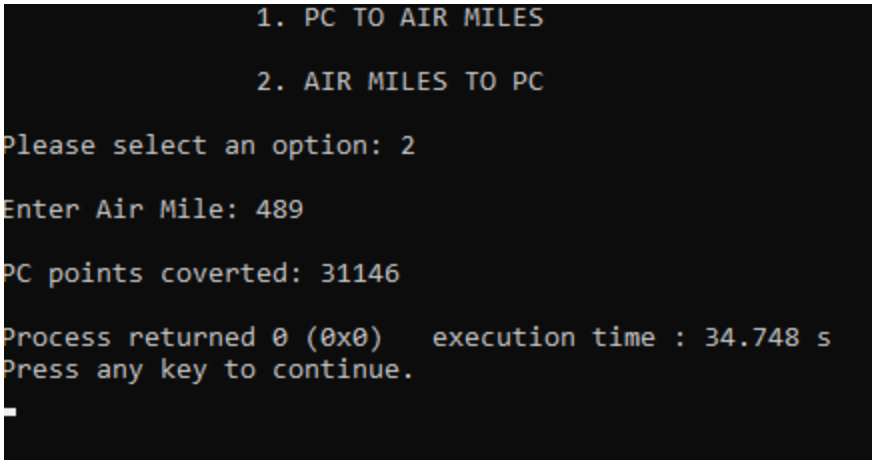

Figure 2.5: Trial 4: Air Miles to PC Points | 489 as value.

2.2 Prototype 2:

This prototype is the market lead. People who have points can sell them to a bank or to other people using the software.When “market listing” (listing for others to buy) the seller can choose their desired price. They also do not pay as much of a premium then selling to a bank. Each bank will have there own rates and offering, allowing for a competitive and inclusive atmosphere with the software. Users with points can also buy points directly from the bank at market value. Market value is based on the supply and demand of the points people are trying to get. In addition people can also loan and convert points. This is exemplified within the attached program/code.
See attached document for prototype 2

3. Test Plan

Bellow, (Table 1.1), is the created test plan for the two created prototypes.

Test ID	***Test Objective***	***Description of Prototype used and of Basic Test Method***	***Description of Results to be Recorded and How these results will be used***	***Estimated Test duration and planned start date***
1	Test the programing made, (in C), that theoretically converts PC Optimum points to Air Mile Points.	A basic formula was created converting PC Optimum Points to Air Mile Points. This was done by doing some basic research to gather how much 1$ of points is worth in PC, and how much a single	The results that will be recorded are the conversion between PC Points and Air Mile Points. This will be done two times, for each type of conversion, using random numbers.	Estimated Test duration: 2-3 minutes. Start Date: November 2, 2021.

		Air Mile Point is worth.		
2	Gathering Feedback on initial prototypes from the company	Feedback is gathered after showing clients how the prototype works	Results will be gathered on paper or any application that can take notes. These notes will then be used during the next team meeting and creation of prototype 2.	Estimated duration: approx. 4 minutes Start Date: November 9, 2021
3	Verify the legality of converting between loyalty points	Question is asked towards the company and verified through research done on own time.	Information from the company will be gathered on paper or any application that can take notes. The verification will also be collected the same way. After, the information will be used during the next team meeting and the creation of prototype 2.	Estimated duration: approx. 2-4 minutes Start Date: November 9, 2021