

## The title of Problem B (To be revised)

### Summary

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Do not include the name of your school, advisor, or team members on this or any page.

Papers must be within the 25 page limit.

Be sure to change the control number and problem choice above. You may delete these instructions as you begin to type your report here.

(We will modify this page when this paper is almost done.)

**Keywords:** keyword1; keyword2

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# 1 Introduction

## 1.1 Problem Background

Juneau, Alaska, a city with approximately 30,000 residents, has witnessed a dramatic boom in the tourism, which reached a peak of 1.6 million passengers in 2023. This influx of visitors has introduced significant economic benefits, generating about \$375 million in revenue for the city. However, it has also brought challenges like overcrowding and environmental concerns.

One of the most urgent issues is the rapid recession of Mendenhall Glacier, a premier attraction that has receded by around eight football fields since 2007. This retreat is partly attributed to warming temperatures, which are exacerbated by the increased human activity associated with overtourism. Moreover, the hidden costs of tourism, including pressure on local infrastructure and an overall increased carbon footprint, poses serious challenges to the environmentally sensitive regions. Though various measures have been taken to ease the burden, like increased hotel taxes, visitor fees and restrictions on alcohol consumption, no tangible results have yet been seen.

While numerous locals who rely on tourism prefer to see growing number benefit their businesses, many others are frustrated and are either leaving or protesting against the impact of tourists. Therefore, how to realize the sustainability of the tourism becomes a great challenge we need to address.

## 1.2 Restatement of the Problem

## 1.3 Our Work

# 2 Assumption and Justification

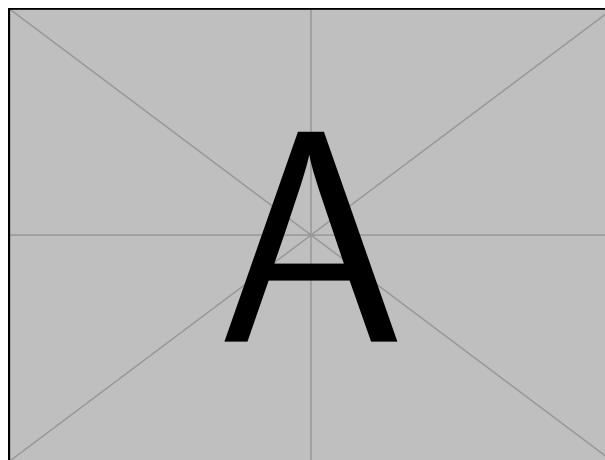


Figure 1: The name of figure

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$$a^2 \quad (1)$$

$$\begin{pmatrix} *20ca_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} = \frac{Opposite}{Hypotenuse} \cos^{-1} \theta \arcsin \theta$$

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$$p_j = \begin{cases} 0, & \text{if } j \text{ is odd} \\ r!(-1)^{j/2}, & \text{if } j \text{ is even} \end{cases}$$

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$$\arcsin \theta = \iiint_{\varphi} \lim_{x \rightarrow \infty} \frac{n!}{r!(n-r)!} \quad (1)$$

### 3 Calculating and Simplifying the Model

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### 4 The Model Results

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## 5 Validating the Model

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## 6 Conclusions

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## 7 A Summary

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## 8 Evaluate of the Mode

## 9 Strengths and weaknesses

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## 9.1 Strengths

- **Applies widely**

This system can be used for many types of airplanes, and it also solves the interference during the procedure of the boarding airplane, as described above we can get to the optimization boarding time. We also know that all the service is automate.

- **Improve the quality of the airport service**

Balancing the cost of the cost and the benefit, it will bring in more convenient for airport and passengers. It also saves many human resources for the airline.

## 9.2 How to cite?

bibliography cite use [1, 2, 3]

AI cite use [AI: 1, 2, 3]

## References

- [1] D. E. KNUTH The  $\text{\TeX}$ book the American Mathematical Society and Addison-Wesley Publishing Company , 1984-1986.
- [2] Lamport, Leslie,  $\text{\LaTeX}$ : “ A Document Preparation System ”, Addison-Wesley Publishing Company, 1986.
- [3] <https://www.latexstudio.net/>

# Appendices

## Appendix A First appendix

In addition, your report must include a letter to the Chief Financial Officer (CFO) of the Goodgrant Foundation, Mr. Alpha Chiang, that describes the optimal investment strategy, your modeling approach and major results, and a brief discussion of your proposed concept of a return-on-investment (ROI). This letter should be no more than two pages in length.

Dear, Mr. Alpha Chiang

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Sincerely yours,

Your friends

Here are simulation programmes we used in our model as follow.

### **Input matlab source:**

---

```
function [t,seat,aisle]=OI6Sim(n,target,seated)
pab=rand(1,n);
for i=1:n
    if pab(i)<0.4
        aisleTime(i)=0;
    else
        aisleTime(i)=trirnd(3.2,7.1,38.7);
    end
end
end
```

---

## **Appendix B Second appendix**

some more text **Input C++ source:**

---

```
//=====
// Name      : Sudoku.cpp
// Author     : lst
// Version    : a.0
// Copyright  : Your copyright notice
// Description : Sudoku in C++.
//=====

#include <iostream>
#include <cstdlib>
#include <ctime>

using namespace std;

int table[9][9];

int main() {

    for(int i = 0; i < 9; i++){
        table[0][i] = i + 1;
```

```
    }

    srand((unsigned int)time(NULL));

    shuffle((int *)&table[0], 9);

    while(!put_line(1))
    {
        shuffle((int *)&table[0], 9);
    }

    for(int x = 0; x < 9; x++){
        for(int y = 0; y < 9; y++){
            cout << table[x][y] << " ";
        }

        cout << endl;
    }

    return 0;
}
```

---



## Report on Use of AI

### 1. Bing AI

Query1: write a sort algorithm

Output: Sure, I can help you with that. Here is a simple implementation of the selection sort algorithm in Python:

---

```
def selection_sort(arr):
    for i in range(len(arr)):
        min_idx = i
        for j in range(i + 1, len(arr)):
            if arr[min_idx] > arr[j]:
                min_idx = j
        arr[i], arr[min_idx] = arr[min_idx], arr[i]
    return arr
```

---

This algorithm sorts an array by repeatedly finding the minimum element from the unsorted part of the array and putting it at the beginning. The time complexity of this algorithm is  $O(n^2)$ .

There are many other sorting algorithms available such as bubble sort, insertion sort, merge sort, quick sort, heap sort, and more. Each of these algorithms has its own advantages and disadvantages. You can learn more about them on [GeeksforGeeks](#) and [Programiz](#).

I hope this helps!

### 2. OpenAI Enie (Nov 5, 2023 version, Ernie 4.0)

Query1: <insert the exact wording of any subsequent input into the AI tool>

Output: <insert the complete output from the second query>

### 3. Github CoPilot (Feb 3, 2024 version)

Query1: <insert the exact wording you input into the AI tool>

Output: <insert the complete output from the AI tool>

### 4. Google Bard (Feb 2, 2024 version)

Query: <insert the exact wording of your query>

Output: <insert the complete output from the AI tool>

### 5. Bing AI

Query: write a FFT algorithm

Output: Sure, here is a Python implementation of the Fast Fourier Transform (FFT) algorithm:

---

```
import numpy as np

def fft(x):
    n = len(x)
    if n == 1:
        return x
    even = fft(x[0::2])
    odd = fft(x[1::2])
    T = [np.exp(-2j * np.pi * k / n) * odd[k] for k in range(n // 2)]
    return [even[k] + T[k] for k in range(n // 2)] + [even[k] - T[k] for k
    ↪ in range(n // 2)]
```

---

The FFT is a widely used algorithm for computing the **Discrete Fourier Transform (DFT)** of a sequence. It reduces the number of computations needed from  $O(n^2)$  to  $O(n \log n)$  12. The basic idea of the FFT is to apply divide and conquer. We divide the coefficient vector of the polynomial into two vectors, recursively compute the DFT for each of them, and combine the results to compute the DFT of the complete polynomial 3.

I hope this helps!