

INTRODUCTION

An air ambulance is a specially outfitted helicopter or fixed-wing aircraft that transports injured or sick people in a medical emergency or over distances or terrain impractical for a conventional ground ambulance. Helicopters can be used for air transportation during emergency to move patients to healthcare facilities from the scene of an emergency. The objective of the project is to understand how weather conditions affect a helicopter’s performance and recommend the best suited helicopter for a healthcare facility or a given rescue scenario.

SCENARIOS

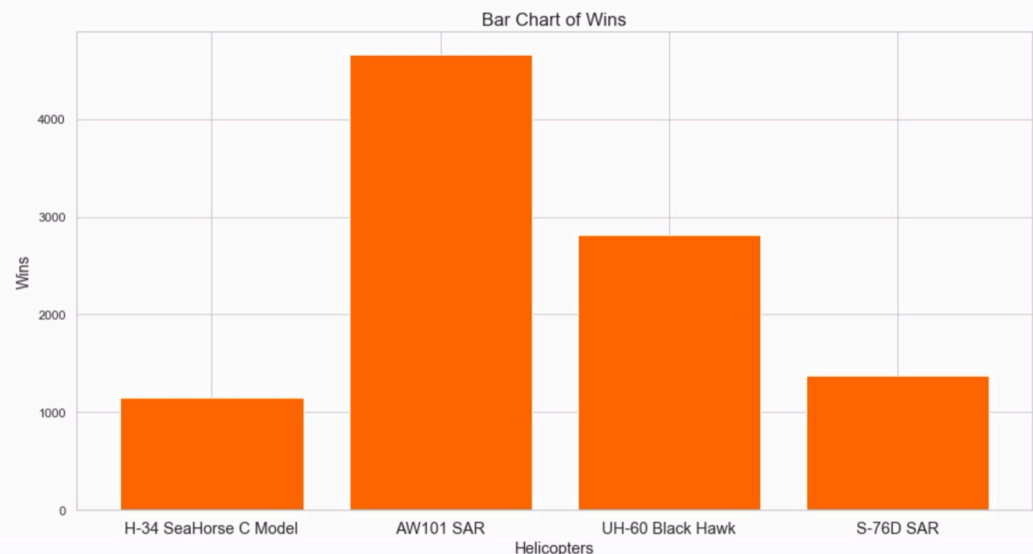
- Given the weather conditions, the range of the helicopter and the maximum speed the helicopter can traverse at, we are considering the following scenarios:
- If a buyer(hospital) wants to buy a helicopter, the system can help in recommending the best model of the helicopter to buy given their requirements.
  - In an emergency situation, given a hospital has different types of helicopters, the system will recommend the optimal performing one.

HYPOTHESES

1. Given certain weather conditions, the fastest helicopter will always be the optimal performing one.
2. Higher occupancy helicopters are always better than lower occupancy helicopters.

RESULTS

SUMMER



The helicopter statistics are -

Name	Wins	Win Percentage %
H-34 SeaHorse C Model	106	10.6
AW101 SAR	452	45.2
UH-60 Black Hawk	278	27.8
S-76D SAR	164	16.4

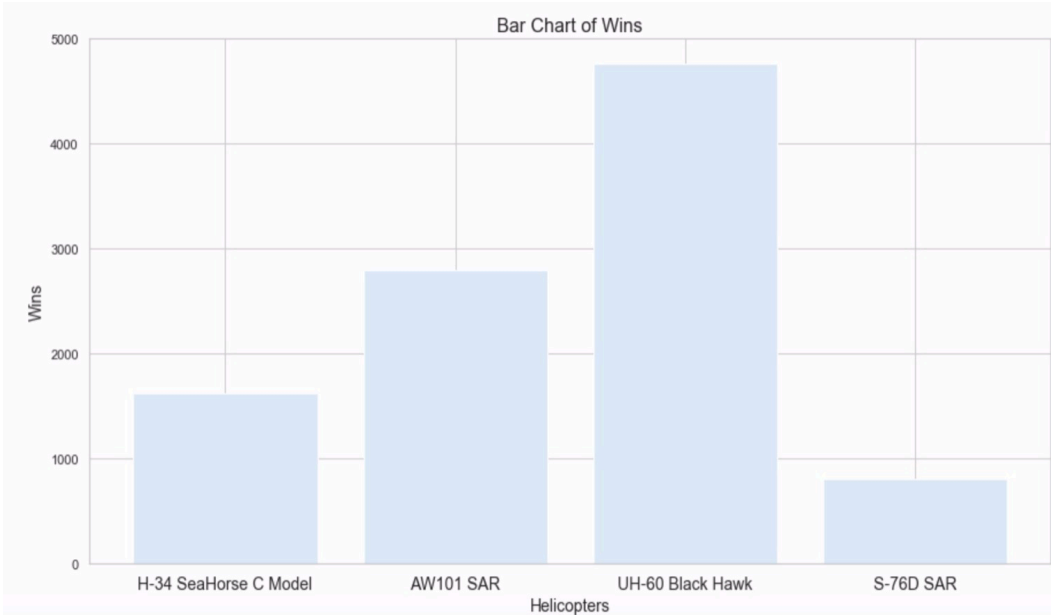
- Weather and wind plays a very important role in determining the speed of the helicopter
- In the summer season, the amount of humidity in the air is more as compared to winter season.
- The speed of the helicopter decreases by around 5% of the maximum speed of the helicopter in the summer season.
- According to our evaluation, in summer season, AW101 SAR wins, which means that it is the fastest helicopter in the summer season.

RAINY

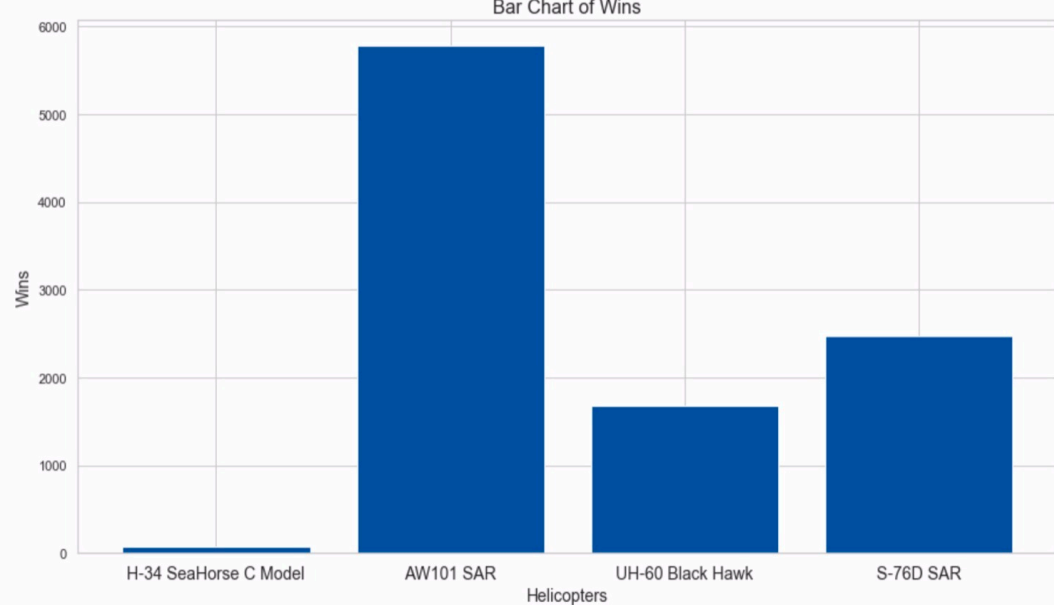
- Weather and wind plays a very important role in determining the speed of the helicopter
- In the rainy season, the amount of humidity in the air is more as compared to winter and summer season.
- The speed of the helicopter decreases by around 10% of the maximum speed of the helicopter in the rainy season.
- According to our evaluation, in rainy season, UH-60 Black Hawk wins, which means that it is the fastest helicopter in the rainy season.

The helicopter statistics are -

Name	Wins	Win Percentage %
H-34 SeaHorse C Model	163	16.3
AW101 SAR	287	28.7
UH-60 Black Hawk	461	46.1
S-76D SAR	89	8.9



WINTER



The helicopter statistics are -

Name	Wins	Win Percentage %
H-34 SeaHorse C Model	8	0.8
AW101 SAR	584	58.4
UH-60 Black Hawk	159	15.9
S-76D SAR	249	24.9

- Weather and wind plays a very important role in determining the speed of the helicopter
- In the winter season, the amount of humidity in the air is less as compared to winter and summer season.
- The speed of the helicopter is not affected in the winter season.
- According to our evaluation, in winter season, AW101 SAR wins, which means that it is the fastest helicopter in the rainy season.

LIMITATIONS & FUTURE WORK

- Our system considers only the weather condition, altitude, number of people and x while recommending the optimal performing helicopter.
- Certain helicopter parameters like the climb rate or the horse power of the helicopter, is not being taken into consideration while suggesting the optimal performing helicopter.
- The system is designed to respond to one emergency situation and does not cater to multiple emergency requests.
- The system can be an useful implementation for recommending the air ambulance best suited for a hospital by including more factors which would affect the performance of the helicopter.

CONCLUSIONS

- The simulation proves that the fastest helicopter is not the optimal performing helicopter in every weather condition.
- Summer and rainy season decreases the helicopter speed by 5% and 10% respectively of the maximum speed of the helicopter.
- Wind speed and direction is also essential to determine the speed of the helicopter.
- The second hypotheses which says that higher occupancy helicopters are better than lower occupancy helicopters, is in progress and we have not tested the hypotheses yet.