ROCKET LAUNCH AND PLANETARY CALCULATIONS

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INTRODUCTION

1. THIS PROJECT IS A PART OF THE OBJECT ORIENTED PROGRAMMING IN C++, SUBMITTED TO THE CS DEPARTMENT.
2. AS THE NAME SUGGESTS, OUR CODE IS ALL ABOUT THE STRATEGICAL PLANNING OF A ROCKET LAUNCH.
3. USER ENTERS THE INPUTS AN OUR APPLICATION CALCULATES THE PLANETARY MOTION AND ALL THE RELATED FACTORS TO GIVE THE EXACT DATE AND TIME FOR A PERFECT ROCKET LAUNCH
4. CONCEPT OF CLASSES HAS BEEN USED IN OUR CODE.

OBJECTIVE

ROCKET LAUNCH MANAGEMENT

Our code manages the launching time of major rockets which helps in lesss tragedies in compared to unmanaged launches.

CHECK PLANET POSITIONS

It also checks the position of mar and earth and mars current position and t-days to when will it be next alinged .

CLASSES

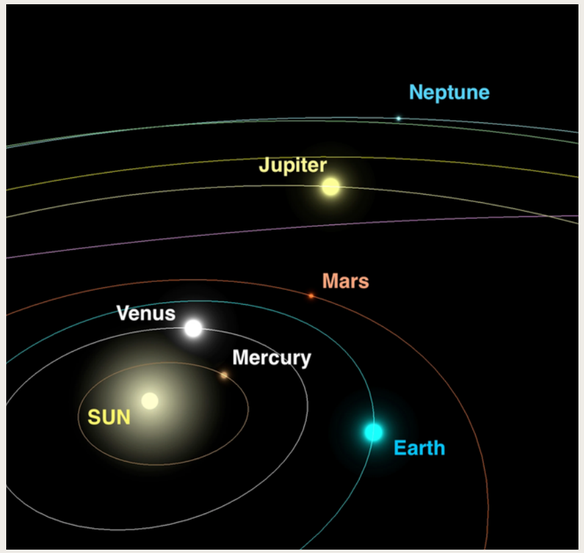
To learn how to design C++ classes for code reuse.

CHECK APPROPRIATE WEATHER

Our code determines the weather conditions of the launch day which includes the wind speed, sun directions , visisbility et cetra.

STEPS OVERVIEW

Firstly we check the dimensions and properties of the rocket such as the velocity and thrust required for launching.



Secondly it checks the position of the planets such as earth and mars to check if the position of the following planets allows the rocket for a perfect flight after the launch.

At last , it checks the weather conditions of the day we have planned to launch the rocket such as windspeed and sunny or rainy. If all these three conditions satisfies the test cases then only a day is decided.

CODING STEPS

01 USER DATA

FIRSTLY, WE HAVE CREATED A CLASS NAMED (wdata) TO DEFINE THE VARIABLES WHICH ARE BEING USED IN THE WHOLE CODE.

02 ROCKET DETAILS

THEN WE HAVE CREATED A CLASS NAMED (rocket) TO GET THE ROCKET DETAILS FROM THE USER SUCH AS THRUST,VELOCITY AND WEIGHT.

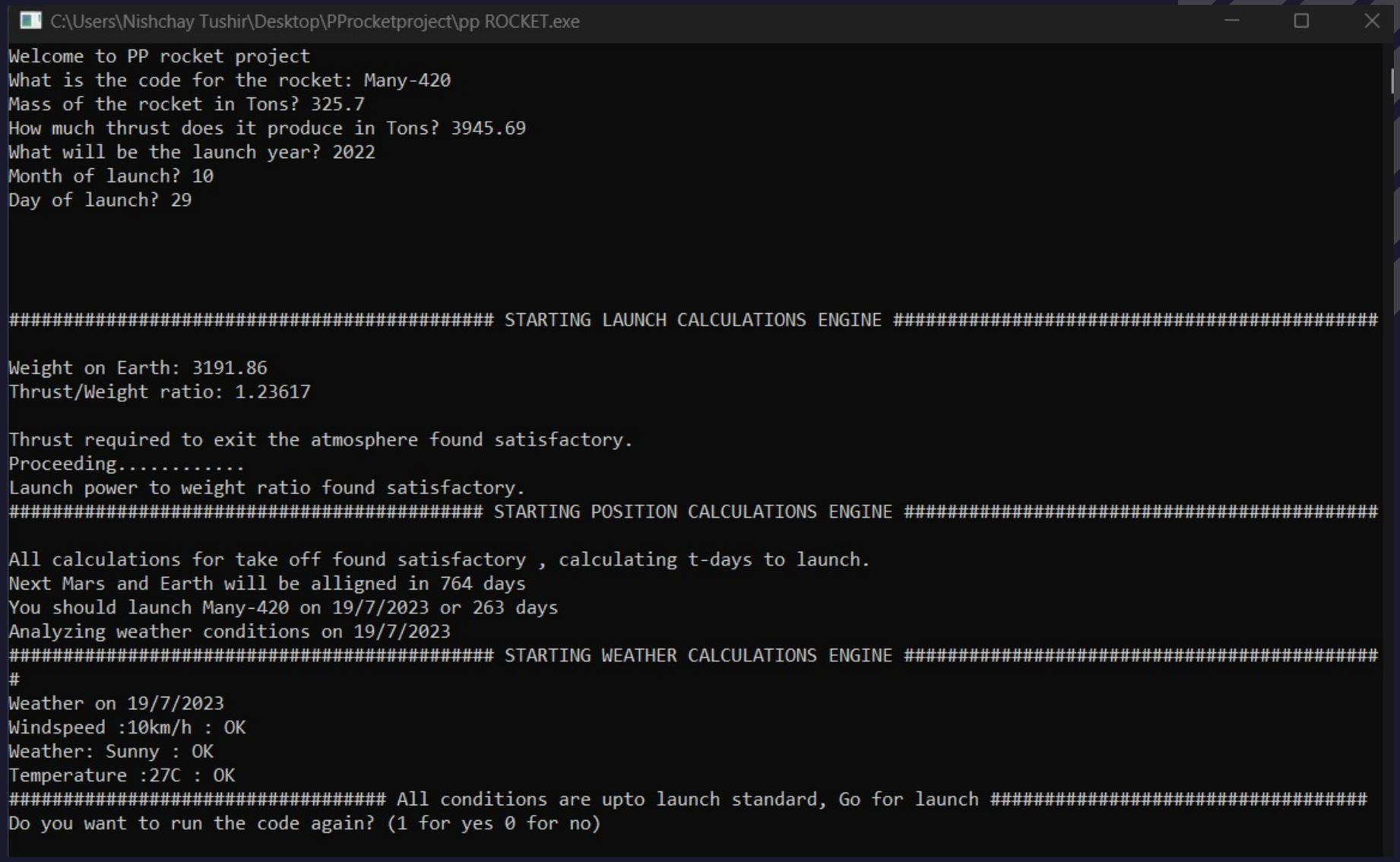
03 LAUNCH CALCULATIONS

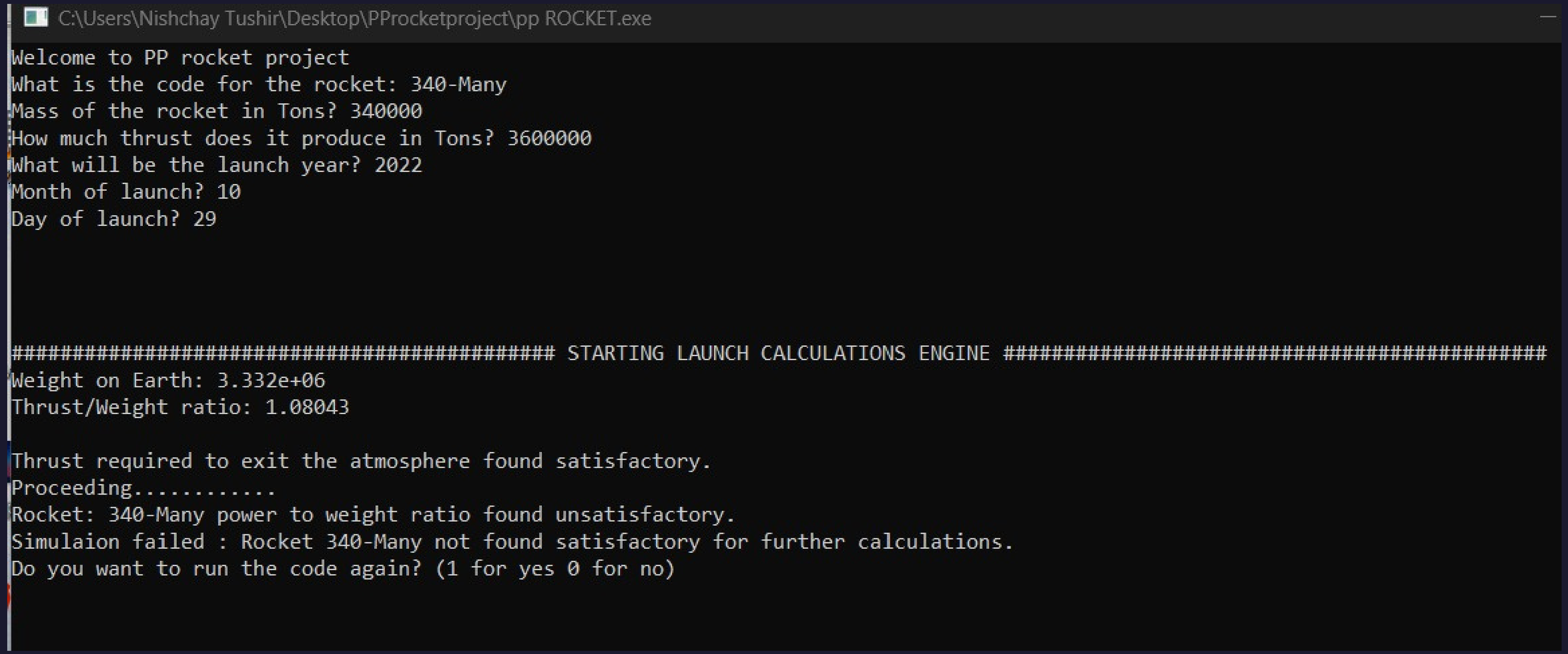
WE HAVE CREATED A FUNCTION launchcal TO CALCULATE THE DESIRED CONDITIONS FOR THE LAUNCH.

04 LAUNCH DATE

LASTLY WE HAVE USED VARIOUS IF-ELSE LOOPS FOR COMPARING THE CONDITIONS WITH THE DESIRED CONDITIONS SO THAT THEY MATCH AND WE GET THE BEST DAY FOR LAUNCH AS THE OUTPUT.

OUTPUT OVERVIEW




C:\Users\Nishchay Tushir\Desktop\PProcketproject\pp ROCKET.exe
Welcome to PP rocket project
What is the code for the rocket: 340-Many
Mass of the rocket in Tons? 340000
How much thrust does it produce in Tons? 3600000
What will be the launch year? 2022
Month of launch? 10
Day of launch? 29
STARTING LAUNCH CALCULATIONS ENGINE
Weight on Earth: 3.332e+06
Thrust/Weight ratio: 1.08043
Thrust required to exit the atmosphere found satisfactory.
Proceeding.....
Rocket: 340-Many power to weight ratio found unsatisfactory.
Simulaion failed : Rocket 340-Many not found satisfactory for further calculations.
Do you want to run the code again? (1 for yes 0 for no)

WHAT DID WE LEARN?

01

WE LEARNED ABOUT THE OBJECT ORIENTED PROGRAMMING IN C++

02

WE DEVELOPED A GOOD COMMAND OVER THE CONCEPT OF CLASSES IN C++.

03

AS A WHOLE, THE PROJECT WAS A GOOD LEARNING EXPERIENCE FOR BOTH OF US. SIMULTANEOUSLY, WE HAVE DEVELOPED A DEPP UNDERSTANDING FOR OOP IN C++.

THANKS
FOR YOUR PATIENCE