

CSC 1300 PROGRAM 1

Fall 2024

Alien Carnival Game



Due Date:

Wednesday, September 25, 2024 by 11:59pm in the ilearn submission folder named **Program 1**.

You may turn in your submission up to **two days late** with a **penalty of 10 points per day late**. After the two days have passed, the submission folder will **close** in ilearn and you will not be able to submit. If ilearn marks your assignment as late, then the points will be deducted. [No programs sent outside of the ilearn submission folder will be graded!](#)

Space Carnival

Welcome to the **Space Carnival**—the most fun place in the galaxy! The main attraction is the **Alien Blaster Showdown**. Colorful alien saucers zoom around the carnival arena, and it's your job as the **Game Master** to calculate how fast the saucers are zooming and how far they are from the cheering crowd. You'll then decide if the carnival-goers should blast the saucers with foam cannons or just cheer them on!

Important Rules to Remember:

- **Do NOT use ChatGPT, copilot, or any other generative AI** to produce code for this program. This is considered cheating, and you will be charged with academic misconduct and earn a ZERO for this programming assignment.
- **Do NOT work with a partner, friend, or classmate on this program!!** This will be considered cheating, and you will be charged with academic misconduct and earn a ZERO for this programming assignment. Get help from the Teaching Assistants/Mrs. Crockett/Mr. Vandergriff when you get stuck!!
- Include comments throughout your code and a comment block at the top of your source file containing the filename, author, title, and date

- Make your output neat, easy to read, and make sure everything is spelled correctly and uses proper grammar.
- Each programming statement should be on its own line and you should use consistent indentions.
- **Do NOT use programming constructs not yet taught in the class.** This means you **can't use the following in your program**:
 - Functions (other than main)
 - Arrays / Vectors
 - Pointers
 - Structs
 - Objects/classes
 - Libraries not covered in class (can't use algorithm, map, etc.)
 - Range-based for loops
 - Ternary operators

Specifications:

Name your source file your TTU username, an underscore, and then prog1.cpp. For example, if your TTU email address was jdoe42@tntech.edu, your program 1 source file would be named **jdoe42_prog1.cpp**.

Place your source file in the **CSC 1300 > Programs > Program1** folder on your computer.

Basic Flow of the Program

1. When the user runs the program, you should print a horizontal line of asterisks, then the title of the program "ALIEN BLASTER SHOWDOWN", and on the next line should be another horizontal line of asterisks.

```
*****
*   ALIEN BLASTER SHOWDOWN   *
*****
```

2. Then, the program should prompt the user for their name, and print a message welcoming "*Game Master <name> to the Alien Carnival Game!*"

```
Enter your name as the Game Master: Glob'thorth

Welcome, Game Master Glob'thorth, to the Alien Blaster Showdown!
```

3. Now onto the main loop of your program:
 - a. Prompt the user to input how far away the alien saucer is (in meters).
 - b. Prompt the user to input how fast the alien saucer is traveling (meters/second).
 - c. Next, calculate how long it will take the saucer to reach the crowd.
 - i. Distance / speed
4. Depending on the distance of the saucer, we will do different things:
 - a. If the saucer will take less than five seconds to reach the audience, we need to **blast it**.
 - b. If it is between 5 seconds and 15 seconds, let it go! The audience loves a bit of dramatics.
 - c. If it is over 15 seconds away, let it go.

5. Prompt the user if another saucer is approaching.
 - a. **If yes, repeat from step 3. ***
 - b. If no, print out how many saucers were blasted.
 - i. If the number of saucers blasted is over 7, let the user know that the crowd loved the show!

[*] This will require a while loop. Do not worry about this part of the program until after you have everything else working! We will cover while loops in chapter 4 – you can read ahead in Zybooks if you do not want to wait until it is covered in lecture.

Grading Assignments - Must Work on Instructor Computer

Programs you submit must work on the instructor's machine or the grader's machine to receive full credit. I know this is not awesome but there is not enough time or resources to test your program in a variety of computers/compilers when grading.

If you are worried that you may experience problems, you are welcome to direct message the TAs or your instructor **BEFORE** the day the program is due to have us test your code. We may or may not check email/Teams on Saturday/Sunday. We will test your code one time to make sure it works and return the results to you.

Be aware that MACs are more forgiving than PCs – they will initialize your variables to zero for you and sometimes include files for you. The instructor's computer is a PC and will not do this for you, which will produce different results.

SAMPLE OUTPUT 1

User input is highlighted in **yellow**.

```
*****
*   ALIEN BLASTER SHOWDOWN   *
*****
Enter your name as the Game Master: Glob'thorth

Welcome, Game Master Glob'thorth, to the Alien Blaster Showdown!

Enter the distance of the alien saucer in meters: 1
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 1.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 10
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 10.00 seconds.
Hold fire! Let's cheer for the saucer as it zooms by!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 20
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 20.00 seconds.
No need to worry—it's just hovering around. Keep enjoying the show!

Is there another saucer approaching? (y/n): n

The Alien Blaster Showdown has ended! You tracked 3 saucers.
What a peaceful show! Everyone left with smiles on their faces.
```

SAMPLE OUTPUT 2

User input is highlighted in yellow.

Note: This is a partial example when user selects to run the program again:

```
*****
*   ALIEN BLASTER SHOWDOWN   *
*****
Enter your name as the Game Master: Schmim'Thorth

Welcome, Game Master Schmim'Thorth, to the Alien Blaster Showdown!

Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
```

Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y
Enter the distance of the alien saucer in meters: 4
Enter the speed of the alien saucer in meters per second: 1
Alien saucer detected! Time until it reaches the crowd: 4.00 seconds.
Blast it with foam cannons! It's zooming in too fast!

Is there another saucer approaching? (y/n): y

The Alien Blaster Showdown has ended! You tracked 10 saucers.
That was intense! The crowd loved it—10/10 entertainment!

Grade Sheet

Fall 2024 CSC 1300 Program #1 ALIEN SHOWDOWN			
Earned Points	Possible Points		
	20	Compiles / Syntax Errors	
		20	Compiles with no errors – 20 points Does not compile, but only has a very small error like missing one semi-colon – 15 points Does not compile – 0 points
	60	Follows Program Algorithm & Specifications	
		5	Program will run as many times as user wants it to run.
		5	Output is neat and as specified in assignment. Output is easy to read and spelled correctly.
		5	Takes in user's name and successfully prints it to the screen.
		5	Defined all variables with correct data type before using them & initialized them correctly.
		20	The main loop is correct – calculates the time it takes the saucer to travel, and outputs the correct line depending on the value.
		20	The results of the game are printed to the screen, with different results depending on how the player performed.
	20	Readability of Code	
		4	Comment block at top containing title of program, date, author, and purpose of program.
		7	Sufficient comments in code. Comments should also be spelled correctly.
		7	Code is indented properly (either a tab or 3-4 spaces, but must be consistent throughout program).
		2	Variable names are appropriate for the data they are holding.
	(only subtracts from grade)	Late Delivery? (10 points per day late)	
	100	TOTAL (FINAL) GRADE	