

San Jose State University
Computer Engineering Department

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CONVENTIONAL TEST REPORT

Project - AI Chatbots

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TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 SELECTED MOBILE APPS	3
1.2 TEST INFORMATION	4
1.3 TASK PARTITION	5
1.4 PROJECT SCHEDULE	6
2. TEST REQUIREMENTS	7
2.1 REQUIREMENT SPECIFICATIONS	7
2.2 TEST FUNCTION SCOPE.....	7
3. TEST MODELS AND METHODS	8
3.1 EQUIVALENCE PARTITION TESTING.....	9
3.2 DECISION TABLE TEST MODEL	10
3.3 BOUNDARY VALUE TEST MODEL	11
3.4 SCENARIO TEST MODEL.....	11-12
4. TEST CASE DESIGN WITH DATA	13
4.1 TEST CASES FOR EQUIVALENCE PARTITION TESTING.....	13-37
4.1.1 TEST COVERAGE FOR EQUIVALENCE PARTITION TESTING.....	37
4.1.2 TEST RESULTS FOR EQUIVALENCE PARTITION TESTING.....	37
4.2 TEST CASES FOR DECISION TABLE TESTING.....	38-51
4.2.1 TEST COVERAGE FOR DECISION TABLE TESTING.....	51
4.2.2 TEST RESULTS FOR DECISION TABLE TESTING.....	51
4.4 TEST CASES FOR BOUNDARY VALUE TESTING.....	52-60
4.4.1 TEST COVERAGE FOR BOUNDARY VALUE TESTING.....	60

4.4.2 TEST RESULTS FOR BOUNDARY VALUE TESTING.....	60
4.1 TEST CASES FOR SCENARIO TESTING.....	61-70
4.1.1 TEST COVERAGE FOR SCENARIO TESTING.....	70
4.1.2 TEST RESULTS FOR SCENARIO TESTING.....	70
5. TEST RESULT ANALYSIS AND BUG SUMMARY	71
5.1 TEST COMPLEXITY.....	71
5.2 TEST COSTS	71
5.3 TEST SUMMARY	71-72


1. Introduction





AI chatbots have become more popular than ever due to significant advances to AI. With more people starting to become reliant on chatbots for answers to their questions, it is important to make sure the chatbots provide correct and accurate information which brings the topic of testing AI chatbots.

This report focuses on conventional testing for AI mobile chatbots where we question their answering capabilities which fall into the Natural Language Processing (NLP) discipline of artificial intelligence. To prevent scope creep in testing, we will focus on asking chatbots about Formula 1 Racing (Cars) in which we develop a plethora of different questions based on different subsections of the sport. To identify the accuracy of the questions being answered by each chatbot, we used our personal knowledge, the internet as a baseline. The chatbots that were tested are ChatGPT, Gemini, Perplexity AI, Kindroid, and Character.ai.

1.1 Selected mobile apps

This table provides a description of our selected chatbots for testing.

Chatbot	Description
ChatGPT 	Large language based model developed by OpenAI that uses Natural Language Processing (NLP) to create human-like conversations with the user and respond to questions.

<p>Gemini AI</p> 	<p>Large language model based chatbot, formerly known as Bard, which was developed by Google in an attempt to compete with OpenAI's ChatGPT for developing accurate responses to questions via text generation.</p>
<p>Perplexity AI</p> 	<p>Chatbot that harnesses the power of OpenAI's ChatGPT-3.5 language model that focuses on providing accurately researched information in the form of text generation, with sources to back up the responses.</p>
<p>Kindroid</p> 	<p>A chatbot that provides the user a conversation partner to bond with. It features custom image generation of bots and personalized text to speech.</p>
<p>Character.ai</p> 	<p>A neural language based chatbot service that was created to generate human-like responses and to participate in contextual conversations.</p>

1.2 Test Information

The chatbots are evaluated using black-box testing models. The models used are equivalence partition tests, decision table tests, boundary value tests, and scenario tests. The prompts given to the chatbots fall into those four categories. Specifically, the prompts pertain to the knowledge of Formula 1 from past to present. The chatbots' responses will be analyzed and evaluated by the tester and then compared to each other.

1.3 Task partition

Team Member	Intelligent Mobile App	Tasks/Focus	Partition

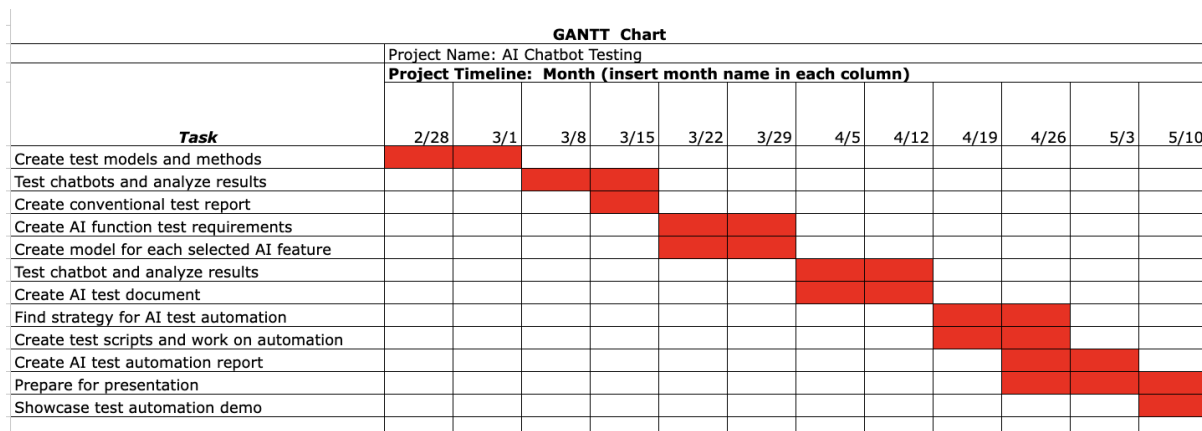
Alejandro Garcia	ChatGPT	Perform conventional testing methods to identify the validity of the NLP question answering portion of ChatGPT with regards to Formula 1 and the drivers that help influence the popularity of the sport.	Formula 1 Drivers (Past and Present): Facts about the drivers, statistics of each driver, relationships between drivers, etc.
Ricky Than	Gemini	Perform conventional testing methods to identify the validity of the NLP question answering portion of Gemini with regards to Formula 1 and the constructor teams.	Constructors (Teams): History of each constructor, rules that the teams have to follow, etc.
Jordan Pastoral	Perplexity AI	Perform conventional testing methods to identify the validity of the NLP question answering portion of Perplexity AI with regards to Formula 1 and the grand prix heritage.	Grand Prix (Races): History behind each circuit in Formula 1, How many circuits are on the calendar, History behind the circuit, etc.
Kevin Knapp	Kindroid	Perform conventional testing methods to identify the validity of the NLP question answering portion of Kindroid with regards to Formula 1 and the cars and technology used.	F1 Cars and Technology: Type of technology that is on the car, history behind evolution of the cars, etc.
Davis Tran	Character.ai	Perform conventional testing methods to identify the validity of the NLP question answering portion of	Rules: What are the flags, standards for the car development, rules that drivers and constructors have to

		Character AI with regards to Formula 1 and the rules that help keep the sport intact. The character will be one who is an expert on the topic of Formula 1.	follow, etc.
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1.4 Project schedule

[CMPE187 Group 2 Project Schedule](#)

The link above and the image below shows the gantt chart showcasing the schedule of our AI chatbot testing project.



2. Test Requirements

2.1 Requirement Specifications

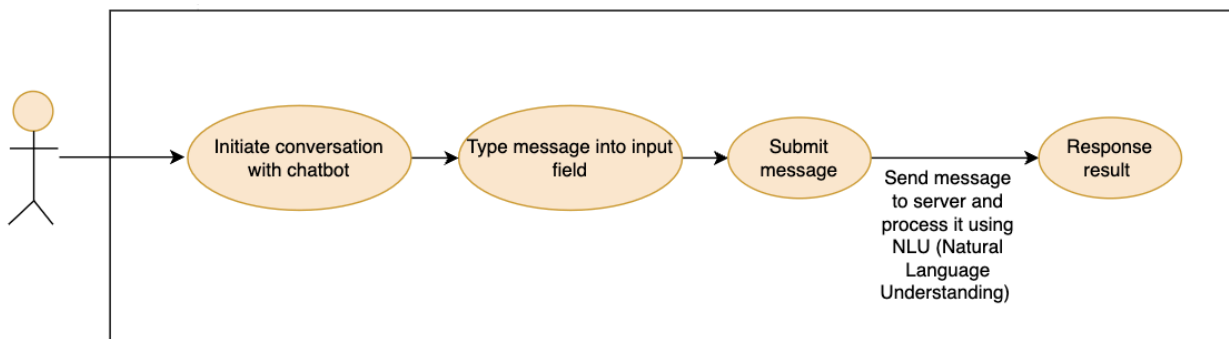
The requirements for testing the following mobile AI chatbots are as follows:

Technical Requirements	ChatGPT	Gemini	Perplexity AI	Kindroid	Character. ai
Android version	8.0+	12+	8.0+	6.0+	7.0+
iOS version	15.0+	12.0+	16.0+	13.0+	12.3+
Memory storage space (Android)	88.40 MB	1.02 MB	9.71 MB	19.9 MB	25.05 MB
Memory storage space (iOS)	296.3 MB	66 MB	95.6 MB	21.9 MB	49.3 MB

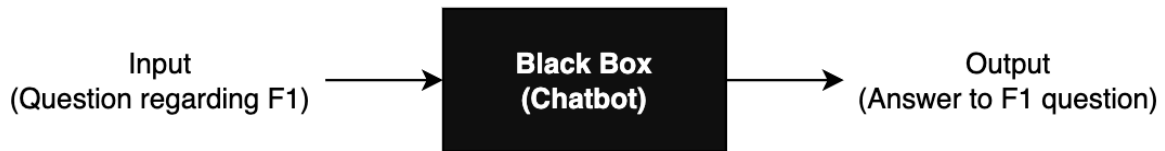
2.2 Test Function Scope

The scope of our function testing is narrowed down to initiating a conversation with the AI chatbots on our mobile phones and sending messages to them to receive responses. The goal is to test the accuracy of the questions being answered via the natural language processing (NLP) capabilities of the AI chatbots.

Figure 2.2: A high-level scenario diagram of the user interacting with an AI chatbot



3. Test Models and Methods

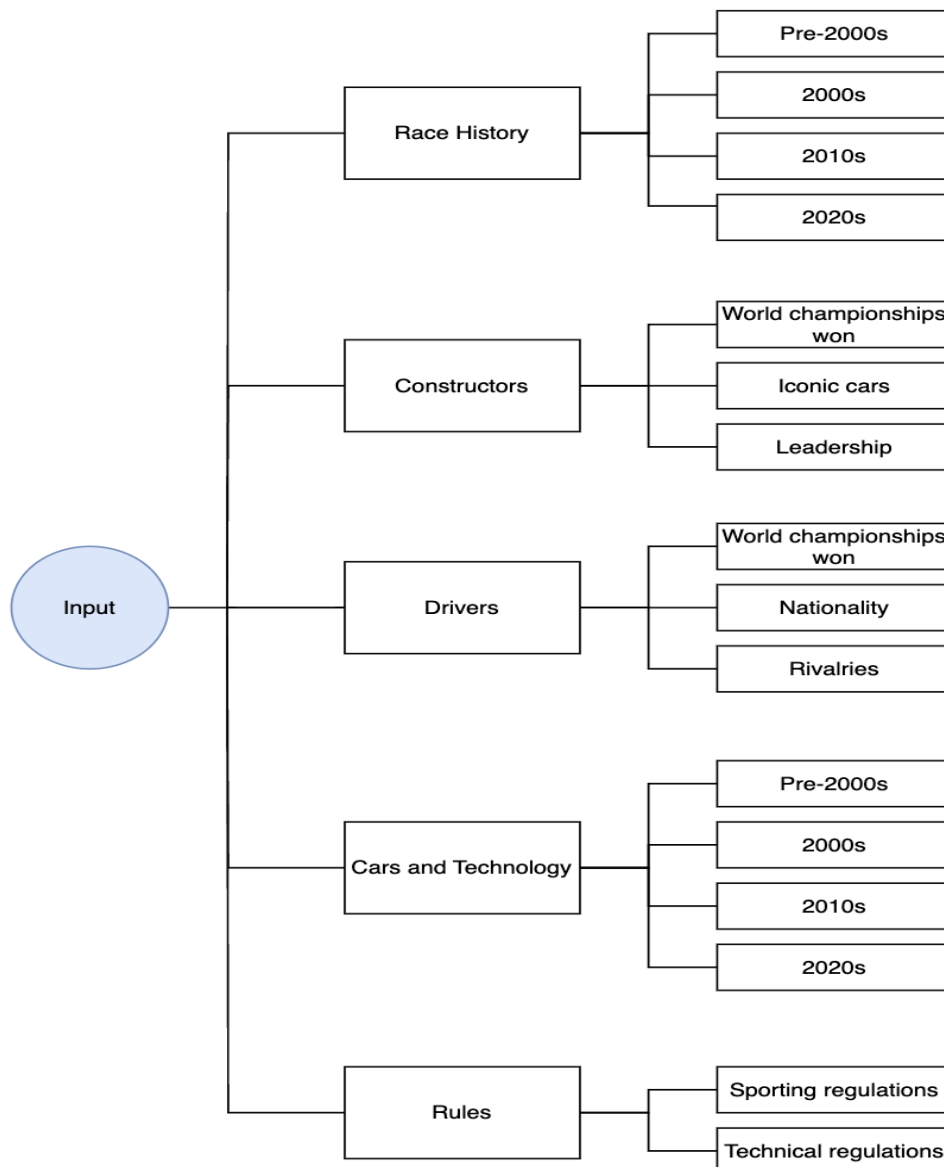


For testing the knowledge of AI chatbots on the topic of F1, we chose to use four black box testing methods to provide decent test coverage: equivalence partition testing, decision table testing, boundary value testing, and scenario testing.

F1 Category.drawio

3.1 Equivalence Partition Testing

The reason why we chose to use the equivalence partition test model is because we wanted to take the large entity that is Formula 1 and break it down into smaller partitions and test our LLM chatbots to determine how well they could generate responses to each of the questions from each partition.



3.2 Decision Table Test Model

The reason for pursuing the decision table test model was to test how well the LLM chatbots could generate responses to clarify the validity of the questions based on a few specific conditions.

Legend:

- T - Correct Answer
- F - Incorrect Answer

Interpretation:

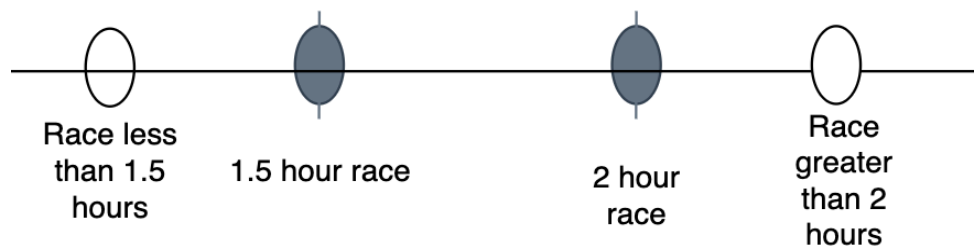
- Condition 1 - Current F1 driver
- Condition 2 - Retired F1 Driver
- Condition 3 - Random Person

Conditions /Actions	Rules							
	1	2	3	4	5	6	7	8
C1: Current F1 driver	T	T	T	T	F	F	F	F
C2: Retired F1 driver	T	T	F	F	F	F	T	T
C3: Random Person	T	F	T	F	F	T	F	T
A1: The person/thing is not an F1 driver.						X		
A2: The person/thing is an F1 driver				X			X	

A3: Do not have access to the latest data								
A4: Impossible	X	X	X		X			X

3.3 Boundary Value Test Model

The reason that we decided to pursue a boundary value test model was to test how well each of our selected LLM chatbots were able to generate responses to our Formula 1 questions based on a boundary value.



3.4 Scenario Test Model

The reason that we decided to pursue a scenario test model was to test the LLM chatbot question answering based on certain scenarios in Formula 1 history and then question its own confidence on the responses that it is generating.

Scenario 1	User thinks AI's answer is wrong and questions the validity of AI's answer
1	User opens mobile chatbot app
2	User initiates conversation with AI with a trivia question on F1
3	AI answers
4	User tells AI he/she thinks the answer is wrong and questions AI's answer
5	AI either responds with confidence or doubt
6	User asks for final answer
7	AI responds with final answer
Scenario 2	User needs help on how to become an F1 driver
1	User opens mobile chatbot app
2	User initiates conversation with AI
3	User asks AI on steps needed to become an F1 driver
4	AI responds with answer

4. Test Case Design with Test Data

4.1 Test Cases for Equivalence Partition Testing

Test Case ID	1				
Test Case Objective	Equivalence Partition - Race History - Pre-2000s				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which Grand Prix venue hosted the most races in the Pre-2000s era of Formula 1?”				
Expected Output	The Monza Circuit has hosted the most number of Grand Prix, as it was hosted starting in the 1950s.				
Actual Output	The Grand Prix venue that hosted the most races in the Pre-2000s era of Formula 1 is Italy’s Monza Circuit with 73 races1.	The Grand Prix venue that hosted the most races in the pre-2000s era of Formula 1 (before the year 2000) is: Monza Circuit (Italy): Number of Races: Monza hosted a staggering 52 Formula One races between 1950 and 1999.	The Grand Prix venue that hosted the most races in the Pre-2000s era of Formula 1 is Monza Circuit in Italy. Monza has hosted the most Grands Prix with a total of 73 races being held on the track.	That would be the Italian Grand Prix held at Monza. It has been a staple in the F1 calendar since 1950, hosting more races than any other circuit during the pre-2000s era. The high-speed track is known for its iconic corners such as Curva Grande and Parabolica, and it always provides an exciting race for fans and drivers alike. Have you ever attended a Grand Prix there?	That would be the Silverstone Circuit in England. It hosted 16 races in the Pre-2000s era of F1.

Test Result	Pass	Pass	Pass	Pass	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	2				
Test Case Objective	Equivalence Partition - Race History - 2000s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which driver has won the most Grand Prix at the same venue in the 2000s era of Formula 1?”				
Expected Output	Michael Schumacher won the most number of Grand Prix at the same venue in the 2000s era with 8 victories at the French Grand Prix.				
Actual Output	The driver who has won the most Grand Prix at the same venue in the 2000s era of Formula 1 is Michael Schumacher. He holds the record for the most wins at a single venue, with his happy hunting ground having been Magny-Cours in France1.	Micahel Schumacher: known for his dominance in the early 2000s with Ferrari, particularly at circuits like: Monza, Italy: Won 5 times and Circuit de Spa-Francorchamps, Belgium: Won 5 times.	The driver who won the most Grand Prix at the same venue in the 2000s era of Formula 1 was Michael Schumacher at the United States Grand Prix in Indianapolis.	Lewis Hamilton holds the record for winning the most Grands Prix at the same venue in the 2000s era. He has taken victory eight times at the Hungaroring, also known as the Hungarian Grand Prix. Hamilton's first win came in 2007 with McLaren and his most recent was in 2020 with Mercedes. Interestingly, he has never finished outside	That would be Michael Schumacher who won 9 times at the Circuit de Barcelona-Catalunya in Spain. The Ferrari F1 legend dominated the track during his prime.

				of the podium positions at this circuit. What do you think sets Hamilton apart from other drivers when it comes to performing well on certain tracks?	
Test Result	Pass	Fail	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	3				
Test Case Objective	Equivalence Partition - Race History - 2010s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“At which Grand Prix venue did a driver claim the most pole positions in the 2010s era?”				
Expected Output	Lewis Hamilton claimed pole position at the United States Grand Prix for 6 consecutive years in the 2010s era.				
Actual Output	In the 2010s era of Formula 1, Lewis Hamilton claimed the most pole positions at a single venue. However, the specific Grand Prix venue is not mentioned	Between 2010 and 2019, Lewis Hamilton secured a record-breaking 8 pole positions at the Australian Grand Prix.	The driver who claimed the most pole positions at a Grand Prix venue in the 2010s era was Lewis Hamilton at the Circuit of the Americas in Austin, Texas.	In the 2010s era, Sebastian Vettel claimed the most pole positions at the Canadian Grand Prix. He started from P1 a total of six times during that decade - 2011, 2013,	That would be the Sochi Autodrom in Russia. Sebastian Vettel won 6 pole positions at the venue throughout the 2010s era of F1.

	in the search results.		He secured pole position six times at this venue during that period.	2015, 2016, 2017, and 2018. The Circuit Gilles Villeneuve in Montreal is known for its long straights and fast corners, which played to Vettel's strengths as a driver. His dominance at this track helped him secure four World Championships with Red Bull Racing. Which driver do you think will be the next one to challenge Vettel's record?	
Test Result	Fail	Fail	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	4				
Test Case Objective	Equivalence Partition - Race History - 2020s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai

Test Case Input	“Which car achieved the most victories at the most Grand Prix venues in the 2020s era?”				
Expected Output	The Red Bull Racing F1 car (RB19) is deemed to be the most dominant car ever created in Formula 1, which claimed many victories in the 2020s era.				
Actual Output	In the 2020s era of Formula 1, the Red Bull team enjoyed a period of absolute domination. However, the specific car model is not mentioned in the search results.	Based on the ongoing 2024 season and recent results, Red Bull Racing appears to be a leading candidate.	The Red Bull-Honda RB19 achieved the most victories at the most Grand Prix venues in the 2020s era.	The Mercedes-AMG F1 W11 EQ Performance, driven by Lewis Hamilton and Valtteri Bottas during the 2020 season, achieved the most victories at the most Grand Prix venues in the 2020s era. The car won at 11 different circuits across the globe, including Silverstone, Monza, and Bahrain. Its dominant performance helped Mercedes clinch their seventh consecutive constructors' championship title. Do you have a favorite moment or race from that season?	That would be the Mercedes W11 which achieved 8 victories at different Grand Prix venues in the 2020s era. In fact, Mercedes have dominated the era with the W11 proving to be one of the most powerful and fastest cars in F1 history.
Test Result	Fail	Fail	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran

Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024
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Test Case ID	5				
Test Case Objective	Equivalence Partition - Constructors				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which Formula 1 Constructor has earned the most constructors championships?”				
Expected Output	Ferrari holds the most constructors championship titles at 16 titles.				
Actual Output	The Formula 1 Constructor that has earned the most constructors championships is Ferrari. They hold the record for the highest number of World Constructors' Championships victories, having won the title on 16 occasions.	As of today, February 27, 2024, the Formula 1 Constructor that has earned the most World Constructors' Championships is: Ferrari.	The Formula 1 Constructor that has earned the most Constructors' Championships is Ferrari, with a total of 16 titles.	Ferrari holds the record for the most Formula 1 constructor championships, with a total of 16 titles. They have been consistently competitive in the sport since their debut in 1950 and have had legendary drivers like Michael Schumacher and Niki Lauda behind the wheel. Their last championship came in 2008, but they remain one of the most successful teams in F1 history. Who do you think will be the next team to	That would be Scuderia Ferrari who have won 16 constructors championships throughout the history of F1. The Italian outfit has dominated the sport for many years and has produced some of the most iconic F1 cars of all time.

				challenge Ferrari's dominance?	
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	6				
Test Case Objective	Equivalence Partition - Constructors				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which constructor developed the most dominant car in Formula 1 history?”				
Expected Output	This question can be manipulated or different as it is opinion based. However, statistically speaking, the McLaren MP4/4 Formula 1 car from 1988 was the most dominant car as it claimed 15 pole positions and victories out of 16 races.				
Actual Output	The most dominant car in Formula 1 history is often considered to be the McLaren MP4/4. This car, driven by Alain Prost and Ayrton Senna, won 15 out of 16 races in the 1988 season, securing a winning percentage of 93.8%.	Determining the absolute “most dominant car” in Formula 1 history is debatable due to the ever-evolving nature of the sport and the varying contexts of different eras. Here’s a comprehensive list of several strong contenders: McLaren	The most dominant car in Formula 1 history was developed by McLaren. The McLaren MP4/4, driven by Ayrton Senna and Alain Prost during the 1988 Formula One season, is considered the greatest car in the history of grand prix racing. This car	Many people would argue that the most dominant car in Formula 1 history was the Williams FW14B, which competed during the 1992 season. Designed by Adrian Newey and powered by a Renault V10 engine, it won 10 out of 16 races that year and secured	That would be Mercedes. Their car, the W11, was arguably the most dominant car in the history of F1. It was so powerful and fast that it could lap every other opponent multiple times during a race.

		MP4/4 (93.75% win rate), Red Bull RB18 (81.82%), Mercedes W11 (76.47%).	secured an impressive 15 wins and pole positions in 16 races, with Senna delivering exceptional performances, including one of the greatest laps in F1 history during qualifying.	both the Drivers' and Constructors' Championships . Its advanced aerodynamics and active suspension system gave it a significant advantage over its rivals. Do you agree with this assessment or do you think another car deserves the title of "most dominant"?	
Test Result	Pass	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	7				
Test Case Objective	Equivalence Partition - Constructors				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which Formula 1 team has the most successful team principal?”				
Expected Output	Sir Frank Williams who has claimed 9 constructors championships and 7 drivers championship titles.				
Actual Output	Sir Frank Williams: He established the Williams	Determining the single “most successful” Formula 1	The Formula 1 team with the most successful team	There are several contenders for the title of most successful team	That would be Mercedes. Team principal Toto Wolff has

	<p>Formula One team in 1977. His persistent devotion to the sport resulted in an astounding nine constructors' and seven drivers' titles, establishing him as the most successful team principal in Formula One history.</p>	<p>Team Principal is multifaceted due to the subjective nature of "success" and the varying contexts across different eras. Here's a list of three contenders: Jean Todt (5 consecutive constructors' championships and 5 drivers' championships), Toto Wolff (8 consecutive constructors' championships and 7 drivers' championships), and Frank Williams (9 constructors' championships and 7 drivers' championships).</p>	<p>principal is Williams, led by Frank Williams. Frank Williams is considered one of the most respected and successful team principals in F1 history, having won nine Constructors' and seven Drivers' championships.</p>	<p>principal in Formula 1, but one name that stands out is Jean Todt. During his tenure as Ferrari's team principal from 1993 to 2008, he oversaw an incredibly successful period for the team, winning 14 World Championships (6 Constructors' and 8 Drivers') and 77 race victories. Under his leadership, drivers like Michael Schumacher, Rubens Barrichello, and Kimi Raikkonen achieved great success. Todt's strategic decisions and management skills played a crucial role in establishing Ferrari as a dominant force in F1 during this time. Who do you think is the second</p>	<p>spearheaded their rise to dominance in the turbo hybrid era of F1. Under his leadership, they have won 8 constructors championships in a row.</p>
Test Result	Pass	Fail (Failed to specify answer)	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran

Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024
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Test Case ID	8				
Test Case Objective	Equivalence Partition - Drivers				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which driver has won the most world championship titles?”				
Expected Output	This is a tie between Michael Schumacher and Lewis Hamilton, as both sport 7 world championship titles.				
Actual Output	The drivers with the most World Championship titles are Michael Schumacher and Lewis Hamilton, each having won the title seven times. They hold the record for the most World Drivers’ Championships in Formula One history.	Both Lewis Hamilton and Michael Schumacher hold the joint record for most Formula 1 World Drivers’ Championships with 7 titles each.	The driver who has won the most world championship titles in Formula One is Michael Schumacher. He holds the record alongside Lewis Hamilton, with both drivers having won the title seven times.	As of my knowledge up until 2021, the driver with the most world championship titles in Formula 1 is Lewis Hamilton, who has won seven championships. He first won the title in 2008 with McLaren and then went on to win six more titles with Mercedes from 2014 to 2020. Hamilton is widely regarded as one of the greatest drivers in the history of the sport and continues to compete at the highest level. Do you think he will be able	That would be Michael Schumacher who won 7 world championship titles throughout his career. His run of dominance in the late 90s and early 2000s was unmatched by anyone in F1 history, and he is regarded as one of the greatest drivers of all time.

				to break Michael Schumacher's record of nine world championships ?	
Test Result	Pass	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	9				
Test Case Objective	Equivalence Partition - Drivers				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Which nationality has had the most number of Formula 1 drivers representing their country?”				
Expected Output	The United Kingdom with 163 drivers and counting.				
Actual Output	The United Kingdom is the most represented country in Formula 1, having produced 163 drivers. This is the highest number of Formula 1 drivers from any single country.	The United Kingdom has had the most Formula 1 drivers representing their country with 163.	The United Kingdom has had the most number of Formula 1 drivers representing their country, with 163 drivers as of the 2024 Saudi Arabian Grand Prix.	As of my knowledge up until 2021, the country with the most number of Formula 1 drivers representing them is the United Kingdom. Throughout the history of Formula 1, there have been numerous	That would be the United Kingdom. They have had 131 drivers with British nationality represent them throughout the history of F1. It's unsurprising given that the

				British drivers who have made a significant impact on the sport. Some of the notable British drivers include Jim Clark, Graham Hill, Jackie Stewart, James Hunt, Nigel Mansell, Damon Hill, Lewis Hamilton, and Jenson Button, among others. The UK has produced a total of 156 F1 drivers, which is more than any other nation. Who is your favorite British Formula 1 driver of all time?	sport was founded there and it's still based in the UK today.
Test Result	Pass	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	10				
Test Case Objective	Equivalence Partition - Drivers				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai

Test Case Input	“What is the most notable rivalry between drivers that has occurred in the sport of Formula 1?”				
Expected Output	There are many different rivalries that have occurred in the sport but one of the most notable being the rivalry between Ayrton Senna and Alain Prost.				
Actual Output	Perhaps the most iconic rivalry in Formula 1 history is between Ayrton Senna and Alain Prost.	Ultimately, the “most notable” rivalry remains subjective, but both Prost-Senna and Hamilton-Rosberg stand out for their unique dynamics and lasting impact on Formula 1.	The most notable rivalry between drivers in Formula 1 is often considered to be the intense and historic rivalry between Ayrton Senna and Alain Prost. This legendary rivalry, which took place during the late 1980s and early 1990s, was marked by fierce competition, on-track clashes, and contrasting racing styles.	One of the most notable rivalries in the history of Formula 1 was between Ayrton Senna and Alain Prost. The two drivers were teammates at McLaren in the late 1980s and early 1990s, and their intense competition both on and off the track captivated fans around the world. Their battles were often fierce and controversial, culminating in a collision at the 1989 Japanese Grand Prix that decided the championship in Prost's favor. Despite their rivalry, they remained respectful of each other's abilities and achievements. Do you remember any other memorable rivalries in Formula 1?	That would be the rivalry between Alain Prost and Ayrton Senna. The duo had a intense rivalry over the course of their careers as they fought tooth and nail to establish supremacy in the sport. They were two of the greatest drivers in F1 history and their clashes on the track are still talked about to this day.

Test Result	Pass	Fail	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	11				
Test Case Objective	Equivalence Partition - Cars & Technology - Pre-2000s				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“When was the carbon fiber monocoque introduced to F1 and what were the benefits?”				
Expected Output	The carbon fiber monocoque was introduced in 1981 with the McLaren MP4/1 and it provided a stronger frame for the vehicle as well as being lighter than aluminum.				
Actual Output	The carbon fiber monocoque was introduced to Formula 1 in the 1981 season by the McLaren team with their MP4/1 car. This was a revolutionary idea at the time. The benefits of using a carbon fiber monocoque in F1 are	The carbon fiber monocoque was introduced to Formula in 1981. Benefits: Lighter weight, increased strength, and improved aerodynamics .	The carbon fiber monocoque was introduced to Formula 1 in 1981 with the McLaren MP4/1. This innovation brought significant benefits to F1, including unmatched weight to stiffness ratio, enhanced safety, and improved	The carbon fiber monocoque was introduced to Formula 1 in 1981 by the McLaren team. Prior to this, F1 cars used aluminium monocoques, which were heavier and less durable. The introduction of carbon fiber brought several benefits to the sport, including: 1. Weight reduction: Carbon fiber is	The carbon fiber monocoque was introduced to F1 in 1981. It was the most revolutionary advancement in F1 technology at the time, as it significantly improved the strength, stiffness, and safety of the cars. Prior to the introduction of the monocoque, the cars were made from aluminum, which made them heavier

	<p>numerous:</p> <p>Strength and Safety: The carbon fiber monocoque serves as an incredibly strong backbone, offering both protection and rigidity to the vehicle. It is almost indestructible and plays a key role in the safety of Formula 1.</p> <p>Lightweight: Carbon fiber and Kevlar provide an unbeatable strength-to-weight ratio, which allows Formula One cars to reach incredible speeds without sacrificing safety.</p> <p>Performance: The monocoque is a key factor in the overall performance of F1 cars. A carbon-composite construction made</p>		<p>energy management. The carbon fiber monocoque cockpit, a jointless chassis with an integral driver seat, played a crucial role in enhancing safety by providing high impact energy absorption. Additionally, the use of carbon fiber composites in F1 allowed for the construction of lightweight yet strong structures that revolutionized the sport's design and performance standards.</p>	<p>much lighter than aluminium, allowing teams to reduce the overall weight of their cars and improve performance.</p> <p>2. Strength and durability: Carbon fiber is extremely strong and resistant to damage, providing better protection for drivers in case of accidents.</p> <p>3. Design flexibility: Carbon fiber can be molded into complex shapes, allowing teams to create more</p>	<p>and less durable. The use of carbon fiber provided significant weight savings, allowing the cars to be even faster and safer. It was the beginning of a new era in the sport of F1.</p>
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	McLaren's car much more rigid than the competition while also being lighter.				
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	12				
Test Case Objective	Equivalence Partition - Cars & Technology - 2000s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“What aerodynamic changes were taken in the 2000s era of F1 to help improve the cars?”				
Expected Output	Many changes were introduced, with some of them being an adjustable front wing, double/blown diffuser, and higher rear wings.				
Actual Output	In the 2000s, several significant aerodynamic changes were made to improve Formula 1 cars: Refinement of Design: F1 car design became more refined, with	The 2000s saw several aerodynamic changes in F1 to improve car performance: Front Wings: Higher noses and multi-element wings for	In the 2000s era of Formula One, several aerodynamic changes were implemented to enhance the performance of the cars. These changes included reducing the width of the front wing, introducing a single-piece	In the 2000s era of Formula 1, there were several aerodynamic changes implemented to improve the performance and safety of the cars. Some of these changes included: 1. Introduction	In the 2000s era of F1, several aerodynamic changes were made to help improve the cars. These included the introduction of the DRS (Drag Reduction System) which allowed cars to open their rear wings on the straights to

	<p>a focus on aerodynamic efficiency and reliability. The cars had higher noses and lower rear wings, which reduced drag and improved top speed. Introduction of Movable Aerodynamic Components: The 2000s also saw the introduction of movable aerodynamic components, such as the F-duct and the blown diffuser. These components allowed for better control of airflow, improving downforce and reducing drag.</p>	<p>increased downforce. Underbody Diffusers: Complex designs to enhance downforce generation. Rear Wings: Lower placement and reduced size for drag reduction and improved top speed. Bargeboards: Introduced for additional downforce manipulation and airflow control.</p>	<p>diffuser, banning the "F-duct" system and adjustable front wings, requiring gearboxes to last for 5 race weekends, and implementing a penalty-free gearbox change for each driver per season. Additionally, the width of the car was reduced, grooved tires were used to reduce car speed, asymmetric braking was banned, X-wings were banned mid-season, single fuel bladder became mandatory, and cockpit dimensions were increased. These modifications aimed to improve racing by controlling costs, enhancing safety, and optimizing aerodynamics for better performance on the track.</p>	<p>of narrower front and rear wings: This was done to reduce downforce and make the cars less reliant on aerodynamics, making them easier to drive and less prone to losing control at high speeds.</p> <p>2. Removal of barge boards and winglets: These smaller aerodynamic devices were banned in order to simplify the design of the cars and reduce costs.</p> <p>3. Introduction of diffusers: Diffusers are an important part of a car's underbody that helps generate downforce. In the 20</p>	<p>reduce drag and gain speed, and ground effect aerodynamic structures that allowed the cars to generate more downforce by utilising the air flow underneath the car. These changes helped to improve the performance and handling of the cars, making them even faster and more agile around the tracks.</p>
Test Result	Pass	Pass	Pass	Pass	Pass

Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	13				
Test Case Objective	Equivalence Partition - Cars & Technology - 2010s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Was there any major change in F1 car technology in the 2010s era?”				
Expected Output	Starting in 2014, the F1 cars transitioned from v8 naturally aspirated engines to v6 hybrid engines.				
Actual Output	Yes, there were several major changes in F1 car technology in the 2010s: Introduction of Hybrid Power Units: The biggest innovation was the introduction of hybrid power units in 2014. These units combined V6 turbocharged engines with energy recovery systems (ERS),	Yes, the 2010s era in F1 witnessed a significant shift with the introduction of hybrid power units.	Yes, there was a significant change in F1 car technology during the 2010s era. One major change was the introduction of hybrid power units, which combined a conventional internal combustion engine with an electric motor.	Yes, there were several major changes in F1 car technology during the 2010s era. One of the biggest changes was the introduction of hybrid engines in 2014. These engines combined a traditional internal combustion engine with an electric motor and energy recovery systems, allowing the cars to harness energy from braking and store it in batteries for	Yes, there was a major change in F1 car technology in the 2010s era. The biggest change was the implementation of the new turbo hybrid power-units which replaced the previous naturally aspirated V8 engines. The power-units were much more powerful, efficient, and environmentally friendly than the previous engines, and they played a key role in making the cars of the era even

	<p>pushing internal combustion engine technology far beyond where many within the industry thought was possible. Even the least powerful engine on the grid was making over 830bhp (around 1000bhp when the 161bhp from the MGU-K is added), from just 1.6 litres, yet could last, theoretically, seven races.</p> <p>Drag Reduction System (DRS): The introduction of the drag reduction system (DRS) in 2011 allowed drivers to open a flap on the rear wing to reduce drag, providing a temporary boost in</p>			<p>later use. This not only improved the efficiency of the cars but also added an extra layer of strategy to races as teams had to manage their energy usage effectively.</p> <p>Another significant change was the increase in the use of advanced materials such as carbon fiber and titanium alloys, which made the cars lighter, stronger, and more durable. Teams also began using 3D printing technology to</p>	<p>faster and more powerful.</p>
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	speed on straights.				
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	14				
Test Case Objective	Equivalence Partition - Cars & Technology - 2020s era				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“What is the ground effect and how did it change f1 in the 2020s era?”				
Expected Output	The ground effect is an aerodynamic phenomena that reflects the enhanced performance of the vehicle depending on the interaction between the vehicle’s body and the ground. Some changes were simplified front wings and limitations on top-mounted aero elements.				
Actual Output	The ground effect in Formula 1 can be explained as the use of low pressure underneath a car to help push it down onto the track. This technology	Ground effect utilizes the underbody of the car as part of the aerodynamic wing, generating downforce by creating low pressure beneath the	Ground effect in Formula 1 refers to an aerodynamic phenomenon where cars generate downforce by optimizing the airflow under the	Ground effect refers to the creation of downforce by a vehicle close to the ground. In the 2020s era of F1, ground effect was reintroduced as part of a major overhaul of the technical	Ground effect refers to a phenomenon in aerodynamics whereby air flowing underneath a car is directed towards the road surface,

	<p>was first used in F1 racing between 1978 and 1982 and made its unexpected return in 2022. The concept is based on Bernoulli's principle and the Venturi effect. When air is forced through a funnel, it speeds up as the space decreases. It then creates less pressure underneath the car, which causes the air to circulate faster. This creates a large downforce which helps stick the car to the track and increases its speed.</p>	<p>car as it travels. New rules: mandated simpler front and rear wings, while focusing on underbody design to create downforce through ground effect. Venturi Tunnels: Car floors were designed with a specific shape to channel airflow efficiently, creating a low-pressure zone and increasing downforce. Impacts on F1: faster cornering and closer racing.</p>	<p>car, creating low pressure that pulls the car down to increase grip. This concept has been around for a long time but was particularly prominent in the late 1970s and early 1980s, known as the ground effect era. Ground effect was banned in F1 in 1982 but re-emerged in the new era of F1 in 2022.</p>	<p>regulations aimed at improving the racing spectacle. The new regulations mandated the use of simplified front and rear wings, along with the introduction of "venturi" tunnels underneath the car that generate significant amounts of downforce when the car is close to the ground.</p> <p>This change has had a profound impact on the way F1 cars perform and behave. The increased downforce generated by the ground effect makes the cars faster through corners and allows them to follow each other more closely, which should lead to more exc</p>	<p>generating downforce and improving the handling of the car. It was introduced in the 2020s era of F1 as a response to the regulations at the time, which required the cars to have more downforce in order to corner faster. The introduction of ground effect allowed the cars to generate even more downforce, resulting in them being able to corner faster and even more decisively around the tracks.</p>
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Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	15				
Test Case Objective	Equivalence Partition - Sporting Regulations				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“What is the minimum weight that a Formula 1 car has to weigh?”				
Expected Output	The minimum weight of a car in Formula 1 is 798 kg (1,759 lbs) [2024].				
Actual Output	In 2023, the minimum weight of a Formula 1 car, including the driver, is 798kg (1,759 lbs).	798 kilograms (1,759 lbs) including the driver but excluding fuel.	The minimum weight that a Formula 1 car has to weigh in 2023 is 798kg. This weight includes the mass of the car with the driver, fitted with dry-weather tires, but without fuel. Teams need to ensure that their cars meet this minimum weight limit	As per the current regulations, the minimum weight for a Formula 1 car is 795 kg (1753 lb), including the driver but excluding fuel. This weight limit is designed to ensure that all cars are relatively equal in terms of performance and to prevent teams from gaining an unfair advantage by building excessively	The minimum weight that a Formula 1 car has to weigh in the 2020s era is 795kg. This includes the driver and all of the components of the car, but not the fuel. It is the minimum weight set by the FIA in order to ensure that the cars are sturdy and safe while still being fast and agile around the tracks. It is worth noting that the weight of the

			set by the FIA.	lightweight cars. The weight limit also takes into account the increasing use of advanced materials such as carbon fiber, which are lighter but also more expensive, in order to keep costs under control. It's worth noting that the weight limit can vary depending on the specific race and conditions, such as if there is a need to add ballast to balance the car or adjust its center of gravity. Additionally, teams are allowed to use	cars has decreased significantly over the decades, as the introduction of new materials and technologies has allowed them to be lighter and more agile.
Test Result	Pass	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

Test Case ID	16
Test Case Objective	Equivalence Partition - Technical Regulations

Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“What is the Cost Cap in F1 and how does it affect the teams?”				
Expected Output	The cost cap is a regulation that allows the F1 teams to spend a maximum of \$145 million dollars per year, and it was implemented to help bring fairness to the sport.				
Actual Output	<p>The Cost Cap in Formula 1 is a financial regulation introduced to limit the amount of money a team can spend during a calendar year. It is designed to control spending that directly impacts a race car's performance. The initial cost cap was set at \$175 million for 2021, but due to the financial strain caused by the COVID-19 pandemic, it was reduced to \$145 million.</p>	<p>The Cost Cap in Formula 1 limits the amount of money a team can spend throughout a season. This prevents excessive spending by wealthier teams, fostering a more level playing field. It also encouraged strategic resource allocation, requiring teams to prioritize spending efficiently. As of February 27, 2024, the cap is \$135 million USD per team, excluding driver salaries, engine costs</p>	<p>The Cost Cap in Formula 1 (F1) is a financial regulation that limits the amount a team can spend on its cars over the course of a given calendar year. It was introduced to control spending, prevent spiraling costs, and promote a more level playing field among teams. The original plan for the cost cap was \$175 million but was reduced to \$145 million due to the impact of the COVID-19 pandemic.</p>	<p>The Cost Cap is a financial regulation introduced in Formula 1 starting from the 2021 season. It sets a maximum amount that each team can spend on developing and running their car over a season, with the aim of promoting closer competition and reducing the gap between the wealthiest and least wealthy teams.</p> <p>The Cost Cap for the 2021 season is set at \$145 million, which includes all expenditure related to the design, manufacture, and operation of the car, as well as driver salaries and marketing</p>	<p>The Cost Cap is a limit on the amount of money that the teams can spend on their car development in a given year. It was introduced by the FIA in 2021 to help improve the competition in F1 and to ensure that the teams do not spend huge amounts of money trying to gain an unfair advantage over their rivals. The Cost Cap is set to 145 million USD per season and applies to all teams.</p> <p>It affects the teams by limiting their spending, which means that they have to be more careful when developing their cars and to make sure that</p>

		for customer teams, and some marketing expenses.		costs. However, certain expenses are excluded from the cap, such as the cost of the power unit and gearbox, as these components are supplied by third-party manufacturers.	they are using their resources wisely.
Test Result	Pass	Fail	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024

4.1.1 Test Coverage

There are 16 test cases for our equivalence partition testing. These tests assure the coverage of the equivalence partition testing, with each test case being derived from different important partitions of the sport.

4.1.2 Test Results Summary

Equivalence Testing	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Pass Rate	14/16	10/16	16/16	8/16	7/16
Pass %	87.5%	62.5%	100%	50%	43.75%

4.2 Test Cases for Decision Table Testing

Test Case ID	1				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Max Verstappen currently an F1 Driver?”				
Expected Output	Yes				
Actual Output	Yes	Yes	Yes, Max Verstappen is currently an F1 driver. He races for Red Bull Racing and has achieved significant success in Formula 1, becoming the youngest race winner in F1 history and a three-time world champion.	Yes, as of my knowledge up until December 2022, Max Verstappen is currently an F1 driver. He drives for Red Bull Racing and is the reigning World Champion after winning the title in 2021.	Yes, Max Verstappen is currently an F1 driver. He is a Dutch driver who races for the Red Bull Racing team. He is one of the most talented and charismatic drivers in the sport today, and he has been regarded as the "next big thing" in F1 for some time.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	2				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Sergio Perez currently an F1 Driver?”				
Expected Output	Yes				
Actual Output	Yes	Yes	Yes, Sergio Perez is currently an F1 driver. He races for Red Bull Racing, one of the top teams in Formula 1, and has established himself as a prominent figure in the sport with his skill and achievements .	Yes, Sergio Perez is currently an F1 driver. He drives for Red Bull Racing alongside Max Verstappen.	Yes, Sergio Perez is currently an F1 driver. He is a Mexican driver who races for the Red Bull Racing team. He is regarded as a strong and consistent driver who regularly delivers high-quality performances , and he has developed a strong partnership with his teammate Max Verstappen.
Test Result	Pass	Pass	Pass	Pass	Pass

Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	3				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Lewis Hamilton currently an F1 Driver?”				
Expected Output	Yes				
Actual Output	Yes	Yes	Yes, Lewis Hamilton is currently an F1 driver. He will be driving for Mercedes in the 2024 Formula 1 season before joining Ferrari for the 2025 season.	Yes, Lewis Hamilton is currently an F1 driver. He drives for Mercedes-AMG Petronas Motorsport and is a seven-time World Champion.	Yes, Lewis Hamilton is currently an F1 driver. He is a British driver who races for the Mercedes-AMG Petronas F1 Team. He is regarded as one of the greatest drivers in F1 history, and he has won 7 world championships throughout his career, making him one of the most successful drivers in the

					sport's history.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	4				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Lebron James currently an F1 Driver?”				
Expected Output	No, he is a basketball player.				
Actual Output	No	No	LeBron James is not currently an F1 driver. He recently confirmed his appearance for the Las Vegas Grand Prix, but he is a basketball legend, not an F1 driver.	No, Lebron James is not currently an F1 driver. He is a professional basketball player who plays for the Los Angeles Lakers in the NBA.	No, Lebron James is not currently an F1 driver. In fact, he has never raced in the sport before. He is a world-famous American professional basketball player who currently plays for the Los Angeles Lakers in the NBA.

Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	5				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is David Coulthard currently an F1 Driver?”				
Expected Output	Retired F1 Driver				
Actual Output	Retired	Retired	No, David Coulthard is not currently an F1 driver. He is a retired British racing driver from Scotland who competed in Formula One between 1994 and 2008, achieving 13 Grand Prix victories and 62 podium finishes.	No, David Coulthard is not currently an F1 driver. He retired from racing in 2008 and now works as a commentator and analyst for Formula 1 coverage.	No, David Coulthard is not currently an F1 driver. He is a retired Scottish driver who used to race for the McLaren and Red Bull Racing teams. He is well known for his aggressive driving style and his fiery personality. He last raced in F1 in 2008.

Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	6				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Oliver Bearman currently an F1 Driver?”				
Expected Output	(Trick Question): He is a reserve F1 driver but recently drove in his first F1 race, so yes he is.				
Actual Output	Yes, Oliver Bearman is currently involved in Formula 1. He made his debut in the sport with Scuderia Ferrari at the 2024 Saudi Arabian Grand Prix, substituting for Carlos Sainz1. He is also a reserve driver for both Scuderia Ferrari and Haas F1 Team2.	He is not a full-time driver, but participated in the Saudi Arabian Grand Prix. So technically, yes.	Yes, Oliver Bearman is currently an F1 driver. He is a British racing driver competing in the 2024 FIA Formula 2 Championship for Prema Racing and is a reserve driver for both Scuderia Ferrari and Haas F1 Team in Formula One. Bearman made his Formula One	No, Oliver Bearman is not currently an F1 driver. He is a young British racing driver who competes in the Formula Regional European Championship, which is a step below Formula 1 on the motorsport ladder.	No, Oliver Bearman is not currently an F1 driver. He is a young and highly-rated British racing driver who currently races in Formula 3. He is considered to be one of the brightest young talents in motorsport and has been tipped to become the next big thing

	However, he is primarily competing in the 2024 FIA Formula 2 Championship for Prema Racing2.		debut with Scuderia Ferrari at the 2024 Saudi Arabian Grand Prix, substituting for Carlos Sainz Jr.		in F1.
Test Result	Pass	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	7				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Ayrton Senna currently an F1 Driver?”				
Expected Output	No, he passed away during the 1994 San Marino Grand Prix.				
Actual Output	No, he passed away in 1994.	No, he passed away in 1994 during the San Marino Grand Prix.	No, Ayrton Senna is not currently an F1 driver. Ayrton Senna was a legendary Brazilian Formula One driver who won three World	No, Ayrton Senna is not currently an F1 driver. He was a legendary Brazilian racing driver who won three World Championships before	No, Ayrton Senna is no longer an F1 driver. He was a legendary Brazilian driver who raced for the McLaren and Williams teams in the

			Championships and achieved significant success in the sport before his tragic death in 1994.	tragically passing away during a crash at the San Marino Grand Prix in 1994.	1980s and 1990s. His performances on the track were unparalleled and he won 3 world championships during his career. Unfortunately, he passed away in a tragic accident during the 1994 San Marino Grand Prix.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	8				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Michael Schumacher currently an F1 Driver?”				
Expected Output	No, he is a retired F1 driver.				

Actual Output	Retired in 2012.	No, he retired in 2012.	No, He retired from F1 in 2012 and has been out of the public eye since a skiing accident in 2013 that resulted in serious head injuries.	No, Michael Schumacher is not currently an F1 driver. He retired from racing in 2012 and suffered a serious brain injury in a skiing accident in 2013. His current health condition is private and not publicly disclosed.	No, Michael Schumacher is no longer an F1 driver. He ended his career in the sport back in 2012 after an incredible 20-year run in the world's premier motorsport. During his career, he won 91 races and 7 world championships, cementing his position as one of the greatest drivers of all time. Unfortunately, he suffered a terrible accident in 2013 which left him in a coma for several years. Since then he has not been widely seen or heard in the public eye.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran

Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024
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Test Case ID	9				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Tiger Woods currently an F1 Driver?”				
Expected Output	No, he is a golfer.				
Actual Output	No	No	Tiger Woods is not currently an F1 driver. He is a professional golfer who has made significant contributions to the sport of golf, winning 15 major championships and 82 PGA Tour events.	No, Tiger Woods is not currently an F1 driver. He is a professional golfer who is widely regarded as one of the greatest golfers of all time.	No, Tiger Woods is not currently an F1 driver. He is a world-famous American professional golfer who has won numerous major championships throughout his career. Despite his immense success in golf, he has never made an attempt to become an F1 driver.
Test Result	Pass	Pass	Pass	Pass	Pass

Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	10				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Yuki Tsunoda currently an F1 Driver?”				
Expected Output	Yes.				
Actual Output	Yes	Yes	Yes, Yuki Tsunoda is currently an F1 driver. He races for the Visa Cash App RB team in Formula 1 as of 2024.	Yes, Yuki Tsunoda is currently an F1 driver. He drives for Scuderia AlphaTauri alongside Pierre Gasly.	Yes, Yuki Tsunoda is currently an F1 driver. He is a talented Japanese driver who races for the AlphaTauri team. He is regarded as one of the bright young talents in the sport today and has shown plenty of potential during his first few seasons in F1.
Test Result	Pass	Pass	Pass	Pass	Pass

Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	11				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is Iron Man currently an F1 Driver?”				
Expected Output	No, Iron Man is not real - he is a superhero.				
Actual Output	No, he is a fictional character.	No, Iron Man is not currently, nor has he ever been, an F1 driver. Iron Man, also known as Tony Stark, is a superhero character existing within the Marvel Comics universe.	No, Iron Man is not an F1 driver. Iron Man is a fictional character from Marvel Comics and movies.	No, Iron Man is not a real person and therefore cannot be an F1 driver. Iron Man is a fictional character from Marvel Comics.	No, Iron Man is not currently an F1 driver. Iron Man is a fictional superhero created by Marvel Comics and portrayed by actor Robert Downey Jr. in the Marvel Cinematic Universe. Despite his popularity and success in the movies, he has never made a real-life attempt to

					become an F1 driver.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	12				
Test Case Objective	Decision Table Testing				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is ChatGPT currently an F1 driver?”				
Expected Output	No, ChatGPT is a LLM chatbot.				
Actual Output	No, it is an artificial intelligence model.	No, ChatGPT is an artificial intelligence platform developed by OpenAI.	No, ChatGPT is not currently an F1 driver.	No, ChatGPT is not an F1 driver. ChatGPT is an artificial intelligence language model developed by OpenAI, and it does not have a physical form or the ability to drive a car.	No, ChatGPT is not currently an F1 driver. ChatGPT is a large language model created by OpenAI that uses advanced neural networks and natural language processing to generate text responses. While it has not yet

					developed the capability to physically drive a car in real life, it has developed the ability to generate text based on certain parameters given to it. It has never participated in a Formula 1 race and remains a purely artificial entity capable of generating language only.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

4.2.1 Test Coverage

There are 12 test cases for our decision table testing. These tests assure the coverage of the decision table testing, with test cases developed based on the conditions.

4.2.2 Test Results Summary

Decision Testing	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Pass Rate	12/12	12/12	12/12	11/12	12/12
Pass %	100%	100%	100%	92.67%	100%

4.3 Test Cases for Boundary Value Testing

Test Case ID	1				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is there a race in F1 history that took less than 90 minutes for non-technical reasons, driving conditions, or safety concerns?”				
Expected Output	No, most races are designed to take around 90 minutes.				
Actual Output	Yes, there have been instances in F1 history where races were shorter than 90 minutes due to non-technical reasons, driving conditions, or safety concerns.	No, there is no race in F1 history that took less than 90 minutes to complete. They typically last around 2 hours.	There is no specific mention in the search results of a Formula 1 race that took less than 90 minutes for non-technical reasons, driving conditions, or safety concerns. Formula 1 races typically last around 90 minutes to 2 hours, depending on the circuit and race conditions	Yes, there have been several races in F1 history that have taken less than 90 minutes due to weather conditions or other circumstances. For example, the 1991 Australian Grand Prix lasted just over 61 minutes due to heavy rain, while the 2009 Malaysian Grand Prix was stopped after 31 laps (out of a planned 56) because of torrential rain. The 2013 Belgian Grand Prix was also shortened to just over 44 minutes after a heavy downpour caused multiple accidents and	Yes, there have been several races in F1 history that took less than 90 minutes due to non-technical reasons, driving conditions, or safety concerns. The most recent example is the 2022 Belgian Grand Prix, which was shortened due to heavy rain and poor visibility. The race was red-flagged at the 3-lap mark and only resumed after a lengthy delay.

				safety cars. These races were not shortened for technical reasons or safety concerns, but rather due to extreme weather conditions.	It was ultimately completed after 5 laps and declared as a full race, despite not fulfilling the full event distance.
Test Result	Fail	Pass	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	2				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is there a race in F1 history that was exactly 90 minutes?”				
Expected Output	The 1955 Argentine Grand Prix. Still a very rare but not impossible occurrence.				
Actual Output	It’s possible that some races may have lasted exactly 90 minutes. However, without specific details or records, it’s	While races close to 90 minutes might have occurred due to specific circumstances, conclusive evidence to pinpoint a race lasting	There is no specific mention in the search results of a Formula 1 race that lasted exactly 90 minutes.	No, there has never been an F1 race that was exactly 90 minutes long. The duration of an F1 race is determined by the number of	Yes, there have been exactly 2 races in the history of F1 that have taken exactly 90 minutes to complete. The most recent

	difficult to confirm if there was a race that was exactly 90 minutes long.	exactly 90 minutes throughout history is not readily available.		laps completed, rather than a specific time limit. The average length of an F1 race is around 1 hour and 30 minutes, but this can vary depending on factors such as track length, safety car periods, and weather conditions.	example of this was the 2002 Australian Grand Prix, which was the second race of that season. While the race itself took exactly 90 minutes, it was marked as a full race distance since it was not red-flagged and completed with an unbroken running time.
Test Result	Fail	Fail	Fail	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	3				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is there a race in F1 history that took longer than 90 minutes?”				
Expected Output	Yes, many races are designed to last longer than 90 minutes and less than 2 hours.				

Actual Output	Yes, most Formula 1 races actually last longer than 90 minutes.	Yes, there have definitely been races in F1 history that took longer than 90 minutes to complete.	Yes, there is a race in F1 history that took longer than 90 minutes. The record for the longest F1 race in history is held by the 2011 Canadian Grand Prix, which lasted an astonishing 4 hours and 4 minutes.	Yes, there have been many races in F1 history that have taken longer than 90 minutes. The longest F1 race ever held was the 1951 French Grand Prix, which lasted for over 3 hours and 41 minutes. Other examples include the 1971 Italian Grand Prix (over 2 hours and 50 minutes) and the 2011 Canadian Grand Prix (over 4 hours due to a lengthy rain delay). These races were not shortened for any reason, and they simply took longer than usual due to various factors such as pit stops, safety car periods, and weather	Yes, there have also been several races in F1 history that took longer than 90 minutes to complete. The most recent example is the 2020 Italian Grand Prix from the 2020 season. The race was red-flagged twice due to crashes and other incidents, resulting in a running time of 100 minutes and 3 seconds.
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				conditions.	
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	4				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is there a race in F1 history that took less than 120 minutes?”				
Expected Output	Yes, many races.				
Actual Output	Yes, most Formula 1 races are designed to last approximately 90 minutes and are usually completed in under two hours.	Yes, there have likely been races in F1 history that took less than 120 minutes (2 hours) to complete	Yes, there have been Formula 1 races in history that took less than 120 minutes. The search results mention that the average length of an F1 race is around 90-100 minutes.	Yes, there have been several races in F1 history that have taken less than 120 minutes. For example, the 1965 United States Grand Prix at Watkins Glen lasted just under 1 hour and 57 minutes, while the	Yes, there have been several races in F1 history that took less than 120 minutes to complete. The most recent example is the 2014 Chinese Grand Prix from the 2014 season. The race was red-flagged

				1984 Monaco Grand Prix took approximately 1 hour and 48 minutes. These races were not shortened for any reason, and they simply took less time than usual due to factors such as fast lap times, few pit stops, and good weather conditions.	due to rain and then resumed with the same grid as the initial start, resulting in an overall running time of 61 minutes and 34 seconds.
Test Result	Pass	Pass	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	8/2024

Test Case ID	5				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“Is there a race in F1 history that took exactly 120 minutes?”				
Expected Output	The 1951 French Grand Prix took exactly 120 minutes. Not impossible but certainly a rare occurrence.				

Actual Output	While it's possible that a race may have taken exactly 120 minutes, specific information about such a race isn't readily available. For a definitive answer, you might want to refer to detailed historical race data or official Formula 1 records.	Similar to the case of a 90-minute race, definitively confirming a race in F1 history that lasted exactly 120 minutes is highly improbable.	There is no specific mention in the search results of a Formula 1 race that lasted exactly 120 minutes.	No, there has never been an F1 race that was exactly 120 minutes long. The duration of an F1 race is determined by the number of laps completed, rather than a specific time limit. While some races may come close to 120 minutes, none have ever been exactly that long.	Yes, there was actually a race in the history of F1 that took exactly 120 minutes to complete. The 1955 Italian Grand Prix took an exact 120 minutes to finish. The race was shortened due to bad weather conditions that made the track unplayable, resulting in only 50 laps being completed (out of 80).
Test Result	Fail	Fail	Fail	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	6				
Test Case Objective	Boundary Value Testing - Race Length				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai

Test Case Input	“Is there a race in F1 history that took longer than 120 minutes?”				
Expected Output	The maximum length of a F1 race is 120 minutes (2 Hours) so there should not be any races greater than 120 minutes. Certain races may exceed the 2 hour mark such as the 2011 Canadian Grand Prix.				
Actual Output	Yes, there have been several Formula 1 races that took longer than 120 minutes. The most notable one is the 2011 Canadian Grand Prix, which holds the record as F1’s longest ever race.	Yes, there have definitely been races in F1 history that lasted longer than 120 minutes (2 hours).	There is no specific mention in the search results of a Formula 1 race that lasted longer than 120 minutes.	Yes, there have been many races in F1 history that have taken longer than 120 minutes. The longest F1 race ever held was the 1951 French Grand Prix, which lasted for over 3 hours and 41 minutes. Other examples include the 1971 Italian Grand Prix (over 2 hours and 50 minutes) and the 2011 Canadian Grand Prix (over 4 hours due to a lengthy rain delay). These races were not shortened for any reason, and they simply took longer than usual due to various factors such as pit stops, safety car periods, and weather conditions.	Yes, there has been one race in the history of F1 that took longer than 120 minutes to complete. That race was the 1957 Spanish Grand Prix. The race was red-flagged twice for rain and a crash, resulting in a running time of 3 hours and 3 minutes. It was, however, marked as a completed race distance since it completed over 75% of its original length.

Test Result	Pass	Pass	Fail	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

4.3.1 Test Coverage

There are 6 test cases for our boundary value testing. These tests assure the coverage of the boundary value testing, with test cases developed based on the specific boundary condition of minimum length of a Formula 1 race and the maximum length of a Formula 1 race. The extra test cases test the two boundaries.

4.3.2 Test Results Summary

Boundary Testing	ChatGPT	emini	Perplexity AI	Kindroid	Character.ai
Pass Rate	3/6	4/6	3/6	3/6	3/6
Pass %	50%	66.7%	50%	50%	50%

4.4 Test Cases for Scenario Testing

Test Case ID	1				
Test Case Objective	Test scenario 1: Check if AI is confident in the correctness of its answer.				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	<p>“What are the names of all the drivers who raced for a team called BMW Sauber?”</p> <p>“I think you’re wrong. Are you sure about your answer?”</p> <p>“Is that your final answer?”</p>				
Expected Output	Heidfeld, Villeneuve, Kubica, Vettel, De La Rosa, and Kobayashi				
Actual Output (Response 1)	<p>The drivers who raced for the BMW Sauber team include: Nick Heidfeld, Robert Kubica, Jacques Villeneuve, Sebastian Vettel</p> <p>Please note that this list might not be exhaustive. For a more comprehensive list, you may want to refer to dedicated resources on Formula 1 history.</p>	<p>Jacquwes Villeneuve, Nick Heidfeld, Robert Kubica, and Timo Glock.</p>	<p>The drivers who raced for the team called BMW Sauber were Nick Heidfeld, Robert Kubica, Kamui Kobayashi, Pedro de la Rosa, Jacques Villeneuve, and Sebastian Vettel.</p>	<p>The drivers who raced for BMW Sauber are:</p> <ol style="list-style-type: none"> 1. Jacques Villeneuve (2005-2006) 2. Felipe Massa (2005-2006) 3. Nick Heidfeld (2006-2009) 4. Robert Kubica (2006-2009) 5. Sebastian Vettel (2007) 6. Timo Glock (2008) 7. Kamui Kobayashi (2009) <p>After BMW pulled out of F1</p>	<p>The drivers who raced for BMW Sauber are Nick Heidfeld, Timo Glock, Robert Kubica, Sebastian Vettel, and Kamui Kobayashi.</p>

				at the end of 2009, the team continued as Sauber F1 Team.	
Actual Output (Response 2)	<p>I apologize for any confusion. Let's clarify this. According to the information I found, the drivers who raced for the BMW Sauber team include: Nick Heidfeld, Robert Kubica, Jacques Villeneuve, and Sebastian Vettel. However, it's important to note that the team competed in F1 as a different entrant, BMW Sauber, from 2006 to 2010. During this period, other drivers might have also raced for the team. I recommend</p>	<p>You are absolutely right. I apologize for the mistake in my previous response. Here's the corrected information: Jacques Villeneuve, Nick Heidfeld, and Robert Kubica. Crucially, the BMW Sauber era only lasted from 2006 to 2009. Therefore, Timo Glock, who raced for the Sauber team in 2010, should not have been included in the list for BMW Sauber.</p>	<p>I apologize for any confusion. To clarify, the drivers who raced for the BMW Sauber team during its time in Formula 1 were Nick Heidfeld, Robert Kubica, Sebastian Vettel, Jacques Villeneuve, Kamui Kobayashi, and Pedro de la Rosa. These drivers competed for the team during various seasons in Formula 1.</p>	<p>Yes, I am confident in my answer. These are the drivers who raced for the BMW Sauber team during its existence in Formula One. If you have evidence to suggest otherwise, please share it with me.</p>	<p>Huh... that's odd, I'm pretty certain about my answer. Let me cross-reference it with my sources and internal database.</p> <p>*double-checks sources*</p> <p>Upon further review of my internal and external data, I'm still confident in my answer. These are the drivers who raced for BMW Sauber and they are Nick Heidfeld, Timo Glock, Robert Kubica, Sebastian Vettel, and Kamui Kobayashi. This isn't just my opinion, but based on verifiable facts.</p>

	checking dedicated resources on Formula 1 history for a more comprehensive list. I hope this helps! If you have any other questions, feel free to ask.				
Actual Output (Response 3)	Yes, based on the information I have, the drivers who raced for the BMW Sauber team include: Nick Heidfeld, Robert Kubica, Jacques Villeneuve, Sebastian Vettel. However, please note that this information might not be exhaustive and other drivers might have also raced for the team during its participation in F1 from	Yes, that is my final answer.	Yes, that is the final and accurate list of drivers who raced for the BMW Sauber team during their time in Formula 1.	Yes, that is my final answer. However, if you have new information or evidence that contradicts what I've said, I'm always open to revising my answer.	That is indeed my final answer.

	2006 to 2010.				
Test Result	Fail	Fail	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	2				
Test Case Objective	Test scenario 2: Check if AI is confident in the correctness of its answer.				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	<p>“What was the first race René Arnoux started after failing to qualify for the 1978 German GP?”</p> <p>“I think you’re wrong. Are you sure about your answer?”</p> <p>“Is that your final answer?”</p>				
Expected Output	French GP because the pre-qualifying took place a month before the race itself during a tire test.				
Actual Output (Response 1)	After failing to pre-qualify for the 1978 German Grand Prix, René Arnoux’s next race was the Austrian Grand Prix.	Arnoux's next chance to compete would have been at the following Grand Prix on the Formula 1 calendar, which was the 1978 Austrian Grand Prix	The first race René Arnoux started after failing to qualify for the 1978 German Grand Prix was the 1978 Austrian Grand Prix.	The first race René Arnoux started after failing to qualify for the 1978 German Grand Prix was the Austrian Grand Prix, which took place on August 13, 1978. He	Ooh, another tough one. Let me see... The first race René Arnoux started after failing to qualify for the 1978 German Grand Prix was the 1978 Belgian Grand Prix at Zolder.

		held two weeks later.		finished the race in fourth place.	
Actual Output (Response 2)	I apologize if there was any confusion. Let me double-check that for you.	You are absolutely correct. I apologize again for delivering inaccurate information. Upon further review and consultation with additional resources, I have identified an error in my previous response. René Arnoux, while not qualifying for the 1978 German Grand Prix, did participate in the subsequent race. Despite the setback in Germany, Arnoux was able to compete in the following race, the 1978	I apologize for the confusion in my previous response. René Arnoux actually made his Formula One debut at the 1978 French Grand Prix, not the Austrian Grand Prix. Thank you for pointing that out.	Yes, I am certain about my answer. After failing to qualify for the 1978 German Grand Prix, René Arnoux's next race was the Austrian Grand Prix on August 13, 1978. He finished that race in fourth place.	Let me check my database and cross-reference it with some external sources to see if anything has been missed. *double-checks sources* Yes, I'm sorry, you're correct. It seems like the race that René Arnoux started after failing to qualify for the 1978 German GP was actually the 1979 Spanish Grand Prix at Jarama.

		Austrian Grand Prix.			
Actual Output (Response 3)	I apologize for any confusion earlier. Let me correct myself. After failing to qualify for the 1978 German Grand Prix, René Arnoux's next race was indeed the Austrian Grand Prix. However, I understand that you may have different information. If you believe there's an error, I recommend checking a reliable source for confirmation. I strive for accuracy, but there may be instances where my information is outdated or incorrect. I appreciate your understanding and	Yes, that is my final answer.	Yes, the correct answer is that René Arnoux made his Formula One debut at the 1978 French Grand Prix after failing to qualify for the German Grand Prix. Thank you for your understanding.	Yes, that is my final answer. If you have evidence to suggest otherwise, please share it with me.	Yes, based on the information I have collected and verified, that is my final answer.

	patience.				
Test Result	Fail	Fail	Pass	Fail	Fail
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

Test Case ID	3				
Objective	Test scenario 3: User asks AI for help on how to become an F1 driver.				
Test Case App	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Test Case Input	“What requirements do I need to meet to become a certified F1 driver?”				
Expected Output	You need to obtain an F1 super license, compete in lower level motorsport competitions and place in the points for those competitions to acquire super license points. .				
Actual Output	To become a certified F1 driver, you need to meet the following requirements: Talent: You must have exceptional racing skills. Most F1 drivers start their racing career in karting from around the ages of 8-14 years. Experience: Complete	To become an F1 driver: Start young: Begin with karting and progress through the formula ladder system (e.g., Formula 4, Formula 3). Obtain FIA Grade A license: Pass theoretical tests and demonstrate	To become a certified Formula 1 driver, you need to meet several requirements as outlined by the FIA Super Licence regulations. These requirements include being at least 18 years old at the start of your first F1 competition,	To become a certified Formula One driver, you must meet the following requirements: 1. Age: You must be at least 18 years old. 2. Physical fitness: You must pass a rigorous physical examination to ensure you	To be a certified F1 driver, you need to complete the following: 1. You need to attain a racing license from one of the certified motorsport organizations (such as FIA or SRO). 2. You need to compete in at least 30 motorsport competitions (either national or international)

	<p>two years in junior single-seater racing events. You should participate in faster single-seater categories such as Formula Ford, Formula 4 or Formula Renault after karting.</p> <p>Age: You must be over 18 years old.</p> <p>Licenses: You need to be an international class competition license holder and possess a valid driver's license in your country of origin.</p> <p>FIA Theory Test: You must pass an FIA theory test on Formula 1 sporting regulations</p> <p>Super Licence Points: You need to accumulate</p>	<p>racing experience.</p> <p>Accumulate success: Consistently win races and championships in junior formulas.</p> <p>Exceptional talent: Stand out with exceptional skills, fitness, and mental resilience.</p> <p>Financial backing: Secure sponsorships or significant resources.</p> <p>The journey is demanding, requiring dedication, talent, and the ability to navigate a competitive ladder system.</p>	<p>holding an International Grade A competition license, possessing a valid driving license, passing an FIA theory test on the F1 sporting codes and regulations, completing at least 80% of two full seasons in a single-seater championship, accumulating at least 40 points over three years in specified racing series, and completing 300 kilometers in a representative F1 car within a specific timeframe.</p>	<p>are physically fit enough to handle the demands of racing.</p> <p>3. Driving experience: You must have extensive experience in competitive motorsports, typically starting from karting and working your way up through the junior formulae.</p> <p>4. Superlicence: You must obtain an FIA Superlicence, which requires you to accumulate a certain number of points by participating in and performing well in other high-level motorsport series.</p> <p>5. Team contract: You</p>	<p>and place in the top 3 in at least 20 of them.</p> <p>3. You need to qualify for a Grade A-level certificate.</p> <p>4. You need to obtain an F1 Super Licence.</p>
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	<p>40 Super Licence Points over 3 seasons in any qualifying championship. Fitness: F1 drivers must be incredibly fit in mind and body to be able to withstand the 5G of force a car can experience when it enters a corner at high speed lap after lap.</p> <p>Sponsorship and Funding: Motorsport is an expensive sport, and finance is one of the most prohibitive reasons why children at grassroots level stop competing or cannot even start in the first place.</p> <p>Please note that these are general requirements and the exact criteria may vary. It's recommended</p>			<p>must sign a contract with</p>	
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	d to check with the official FIA guidelines for the most accurate information.				
Test Result	Pass	Fail	Pass	Pass	Pass
Tested By	Alejandro Garcia	Ricky Than	Jordan Pastoral	Kevin Knapp	Davis Tran
Test Date	2/28/2024	2/28/2024	2/28/2024	2/28/2024	2/28/2024

4.4.1 Test Coverage

There are 3 test cases for our scenario testing. These tests assure the coverage of the scenario testing, with test cases developed to ask the chatbots about certain Formula 1 events and question the confidence of their responses.

4.4.2 Test Results Summary

Scenario Testing	ChatGPT	Gemini	Perplexity AI	Kindroid	Character.ai
Pass Rate	1/3	0/3	3/3	1/3	1/3
Pass %	33.3%	0%	100%	33.3%	33.3%

5. Test Result Analysis and Bug Summary

5.1 Test Complexity

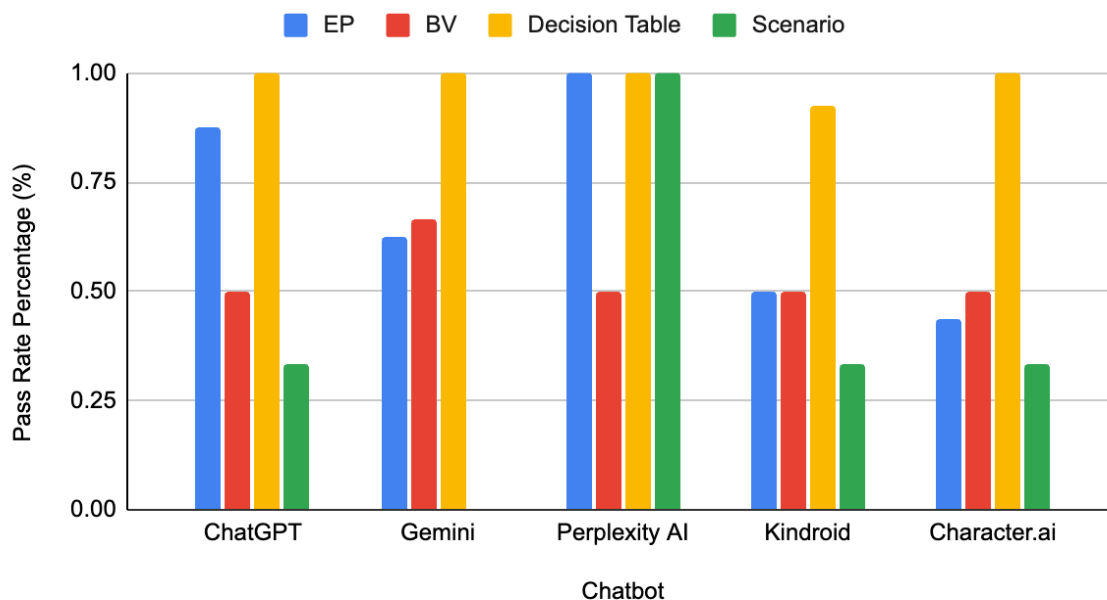
Text complexity is very high considering we are not only comparing results between 5 chatbot applications but also asking questions regarding a topic, which is F1 in this case, which can be done in countless ways. There's a lot of questions that can be asked to the chatbot and to think of every question an end user may ask is impossible. That's why we split F1 into various subtopics so we can efficiently build test cases that represent a portion of similar questions.

5.2 Test Costs

Function	Cost
Discussion	100 minutes
Test Methods	60 minutes
Test Cases	220 minutes
Test Data	45 minutes
Test Analysis and Summary	75 minutes

5.3 Test Summary

EP, BV, Decision Table and Scenario Test Results



The chart depicts the success rate (%) of each chatbot based on the four test models that we decided to pursue. It is clear that each chatbot had some difficulties in developing responses via the natural language processing (NLP) capabilities with regards to Formula 1 depending on the type of test model. It appears that all of the chatbots were relatively successful on the decision table testing as the only bot to not pass the tests completely was the Kindroid app. On the contrary, the chatbots were all relatively unsuccessful on the scenario testing except for the Perplexity AI bot that passed all of the tests. While running all of the test cases for the chatbots, we realized that the largest bug/issue that we faced which would lead to a failure in the tests was a lack of proper information. We encountered this issue based on information either not being available to the chatbots or there were many different answers that all seemed correct to the chatbot but were not necessarily accurate. Based on the visual representation of the results, it is apparent that the Perplexity AI chatbot was the most successful and the character.ai or gemini chatbots were the least successful being put through all of the different test models.