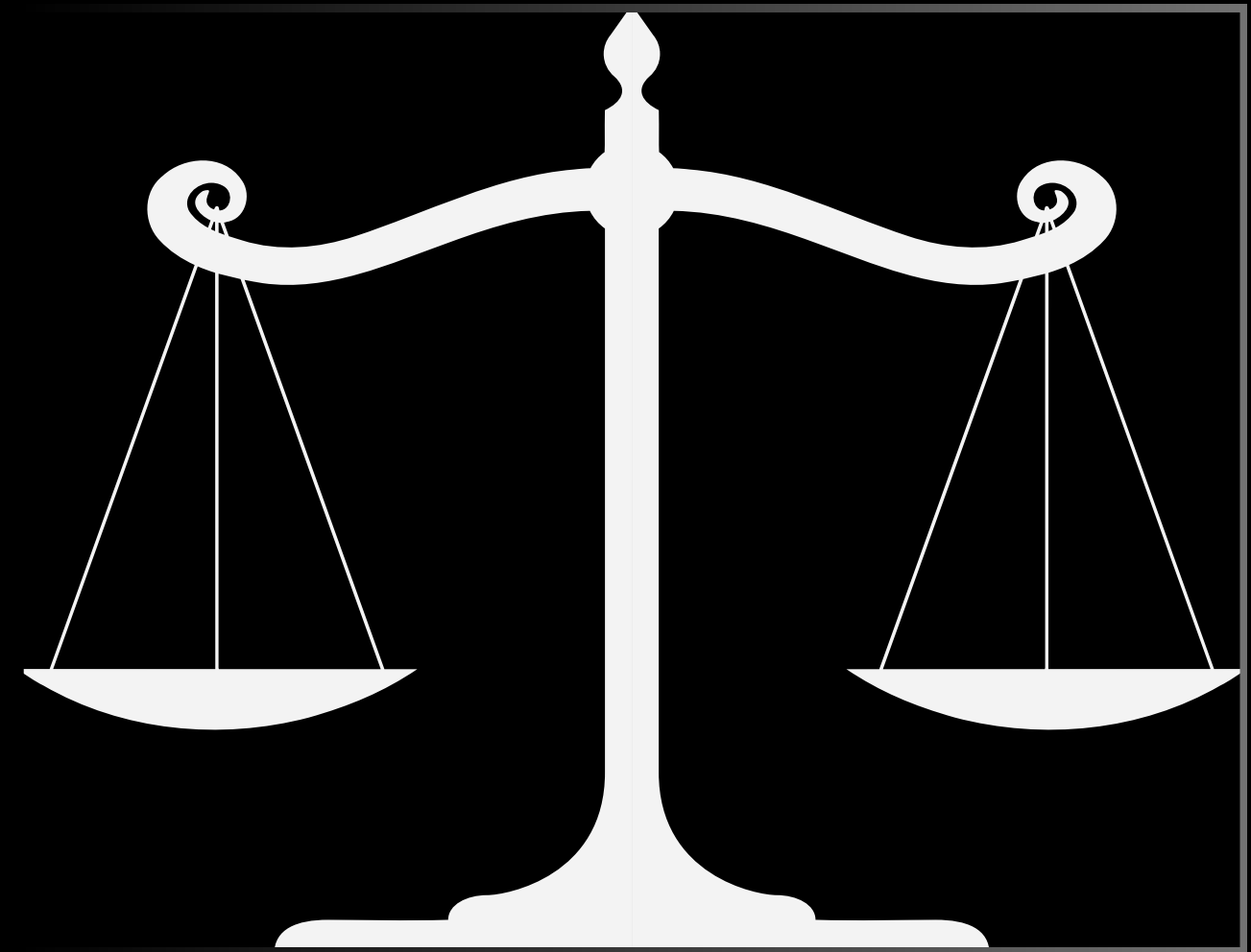# Criminal Judgement Prediction Model

Hussain Mustansir, Muhammad Anas, Muhammad Ansab Chaudhary
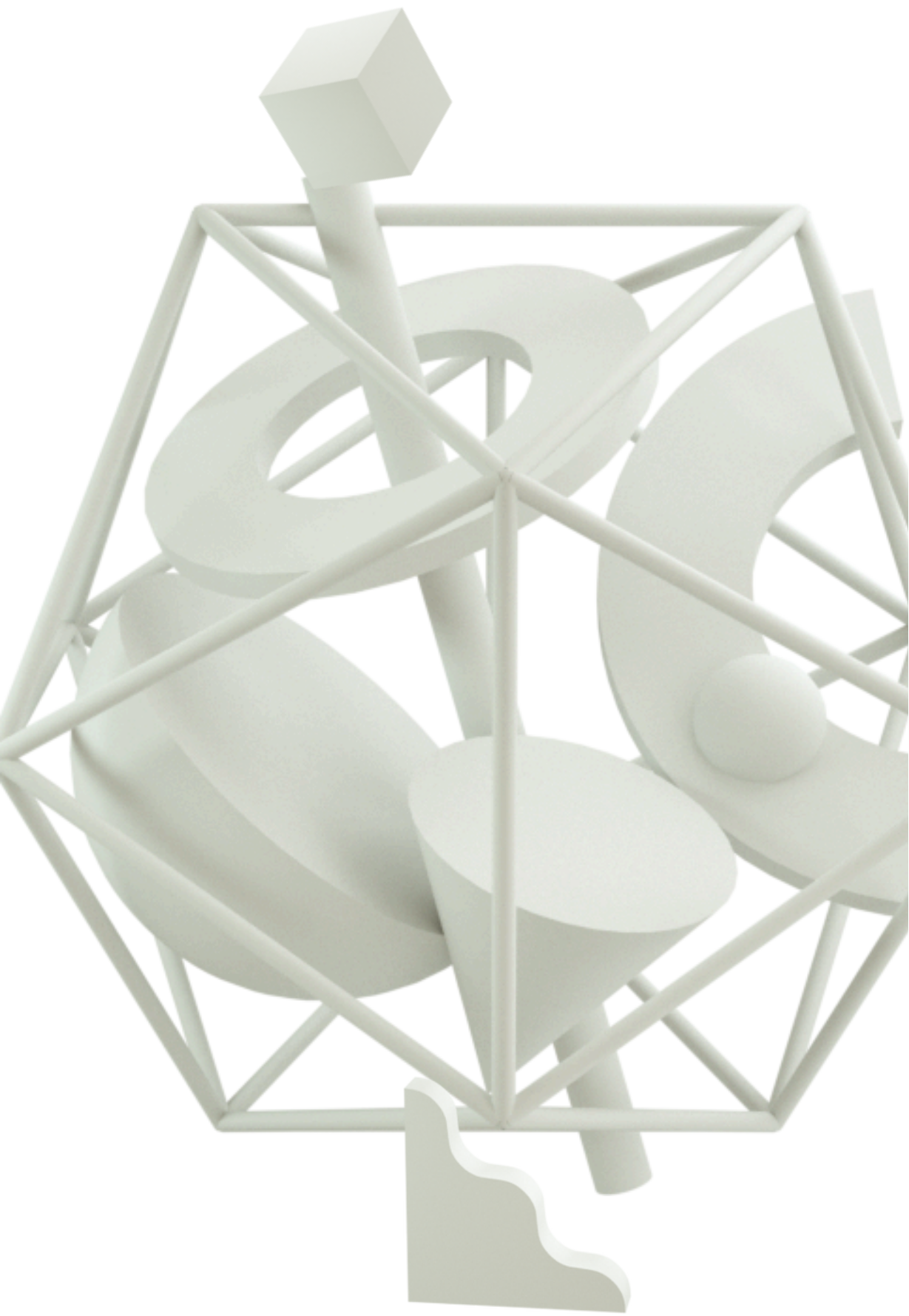
PROBLEM STATEMENT

Given a Crime Scenario, predict the most likely judgement of a jury of Pakistani Courts
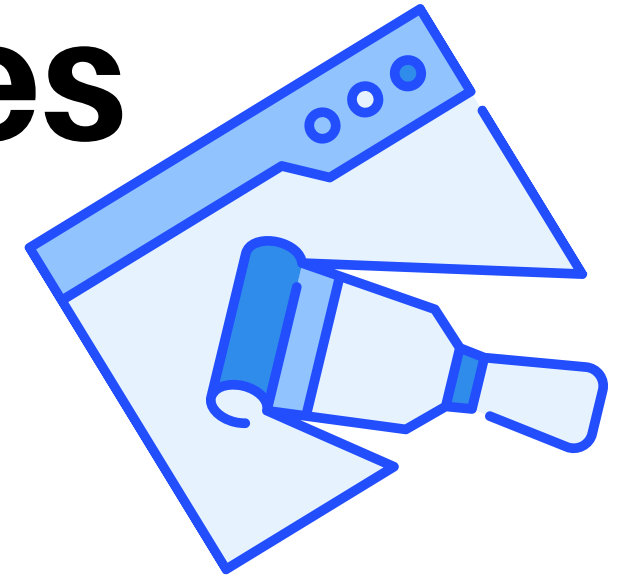
MOTIVATION

We aim to make the legal process more predictable and easier for lawyers, judges, and the public to understand possible outcomes of criminal cases. We hope to support fairer and quicker decision-making in the justice system.
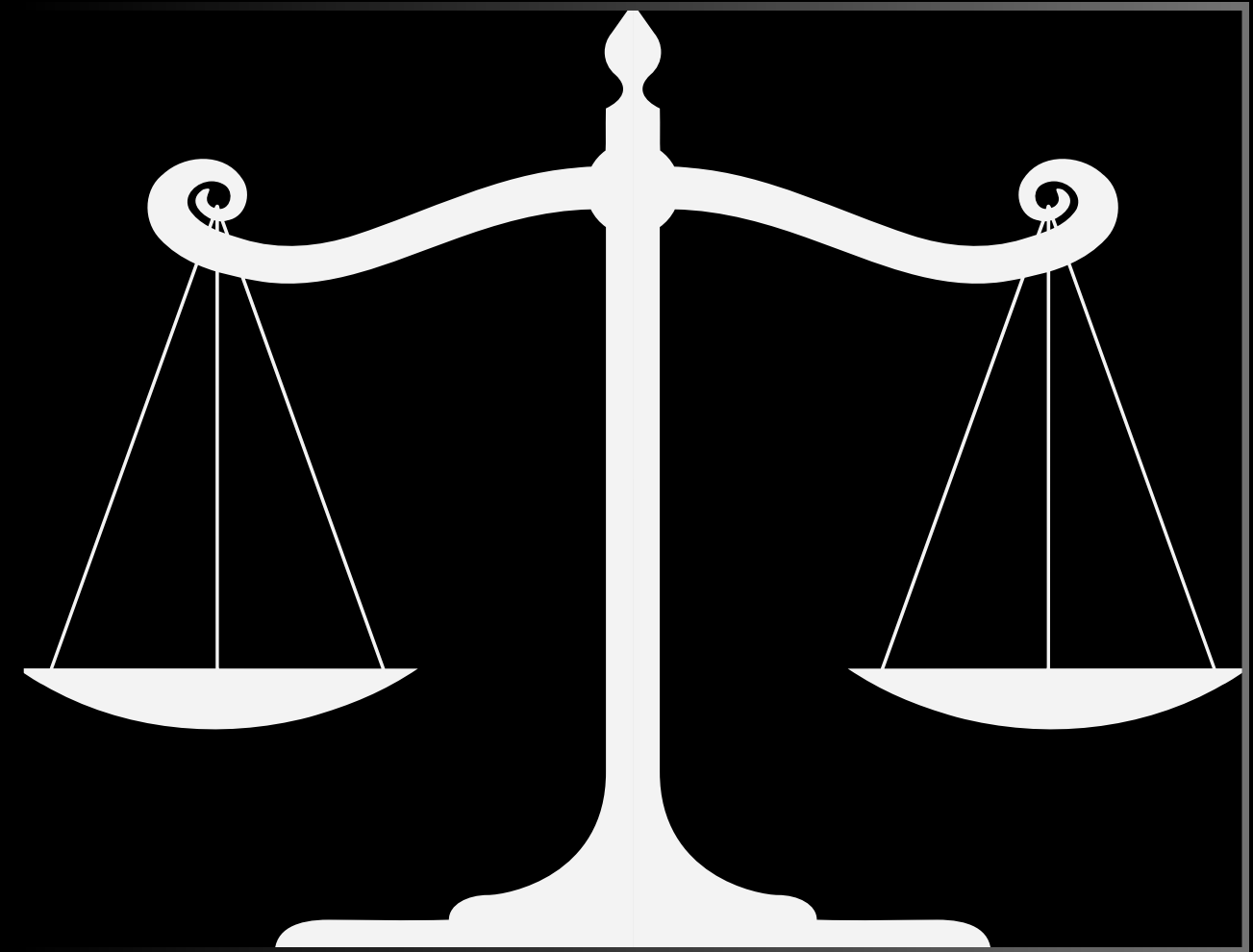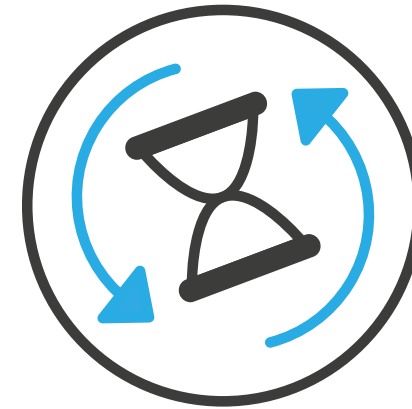
Dataset & Sources

▶

- Sindh High Court [1]
- Peshawar High Court [2]
- Lahore High Court [3]

Summarizing using Llama 3.2

Inputs		Output
Crime Scenario	**Witnesses**	**Judgements**
lorem	lorem ..dsf	lorem ipsum...

ا۰۰۰مبروك

Sample Input for Model

SAYYED MAZAHAR ALI AKBAR NAQVI, J:-

Muhammad Asif son of Nazar Muhammad, caste Baloch, resident of Chhawani Khawaja Salah, Tehsil Bhera, District Sargodha, appellant along with Maqbool, Mustafa, Muhammad Arshad, Muhammad Imran son of Shamsher, Muhammad Imran son of Sardara, Muhammad Amir, Sardara, Farrukh Javed, Wazir Khan and Mst. Riffat Batool (all since acquitted) was involved in case FIR No.343/2010, dated 26.09.2010, offence under Sections 302, 148, 149, 109, PPC,

registered with Police Station Bhera. He was tried by learned Additional Sessions Judge Bhalwal, District Sargodha under the afore-mentioned offences. Learned trial court seized with the matter in terms of judgment dated 08.09.2015 convicted and sentenced the appellant in the following terms:-

➤ Under Section 302(b), PPC, sentenced to death as Ta'zir with direction to pay Rs.2,00,000/- as compensation to legal heirs of deceased in terms of Section 544-A, Cr.P.C. to be recovered as arrears of land revenue and in case of default in payment thereof, to undergo S.I. for six months.

Sample Input for Model

Scenario

scenario

On September 26, 2010, at around 7:00 p.m., Muhammad Nazeer, a 20-25-year-old son of the complainant, was killed in a firing incident at Chhawani Khawaja Salah, Tehsil Bhera, District Sargodha. The complainant, Muhammad Khan, stated that he was returning from a meeting with his son Muhammad Nazeer and his wife Mst. Amina Bibi on a motorcycle when they were intercepted by a group of armed men, including the appellant, Muhammad Asif, and others. The accused persons, including Muhammad Asif, made indiscriminate aerial firing, and Muhammad Nazeer was shot in the left cheek and back of the neck. He succumbed to his injuries at the spot.   * The complainant, Muhammad Khan, and his wife, Amina Bibi, along with their son, Muhammad Nazir, and Gulzar Ahmed, were on their way to a meeting with Mst. Riffat Bibi, who was the accused's wife. * The accused, Muhammad Asif, and his co-accused, allegedly intercepted them and opened fire, resulting in the death of Muhammad Nazir. * The prosecution witnesses, including the complainant, Amina Bibi, and Gulzar Ahmed, initially stated that they reached the dera of Ameer, but later changed their statements to say that they were intercepted by the accused near an open space.

Witnesses

witnesses

The prosecution produced 19 witnesses, including: * Muhammad Khan (PW-6), the complainant * Mst. Amina Bibi (PW-7), the wife of the complainant * Gulzar Ahmed (PW-10), a witness who was riding a motorcycle with the complainant * Tariq Mehmmod 821/C (PW-12), who escorted the dead body to the mortuary * Muhammad Hafeez, Draftsman (PW-18), who prepared a scaled site plan of the place of occurrence * Dr. Noor-ul-Amin, Medical Officer (PW-2), who conducted the post-mortem examination   * Muhammad Khan, complainant * Amina Bibi, wife of the complainant * Gulzar Ahmed * Other prosecution witnesses who took a "complete somersault" in their statements during the trial

Sample Judgements

Judgment Sheet
IN THE LAHORE HIGH COURT, LAHORE
## JUDICIAL DEPARTMENT

Crl. Appeal No.1617/2015

Moreover, it is golden principle of law that the Court ought to let off 100 guilty but should not convict one innocent person on the basis of suspicion. Resultantly while setting aside the conviction and sentence recorded by the learned trial court in terms of judgment dated 08.09.2015, Crl. Appeal No.1617/2015 filed by the appellant is **accepted in toto** as a consequence whereof he is ordered to be acquitted of the charge in FIR No.343/2010, dated 26.09.2010, offence under Sections 302, 148, 149, 109, PPC, registered with Police Station Bhera. The appellant is directed to be released forthwith, if not required in any other case.

23.   Murder Reference No.33/2016 forwarded by the learned trial court in terms of Section 374, Cr.P.C. for confirmation of death sentence inflicted upon Muhammad Asif/convict fails, which is answered in the **NEGATIVE**. Death sentence is **NOT CONFIRMED**.

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circumstances, and that the truthfulness of the prosecution story had to be ascertained by taking into consideration all the facts and circumstances. * Th

C

judgment

The appellant, Muhammad Asif, was convicted of murder under Section 302(b), PPC, and sentenced to death with a direction to pay Rs. 2,00,000 as compensation to the legal heirs of the deceased. The trial court found the prosecution's version proved beyond a shadow of reasonable doubt. The learned judge of the Lahore High Court upheld the conviction and sentence, rejecting the appellant's appeal. The court held that the prosecution's evidence, including the ocular account, motive, medical evidence, recovery of rifle, and investigation, was reliable and confidence-inspiring. The court also rejected the appellant's contention that the prosecution witnesses had taken a somersault in their statements and that the medical evidence was inconsistent with the ocular account. The court upheld the conviction and sentence, citing the principles of law that each criminal case has its own peculiar facts and circumstances, and that the truthfulness of the prosecution story had to be ascertained by taking into consideration all the facts and circumstances. * The court accepted the appeal filed by Muhammad Asif and acquitted him of the charges of murder, as the prosecution case was "pregnant with major discrepancies" and created serious doubts about its authenticity. * The court also rejected the recovery of a rifle allegedly belonging to the accused, as the report was "squarely devoid of legal credence". * The court further held that the prosecution case was not free from doubt, and the charges were not brought home to the accused in a manner required under law. * The court also dismissed the appeals filed by other accused persons, including Maqbool, Mustafa, Muhammad Arshad, and others, as the prosecution case was not strong enough to convict them. * The court ordered Muhammad Asif to be released forthwith, if not required in any other case.
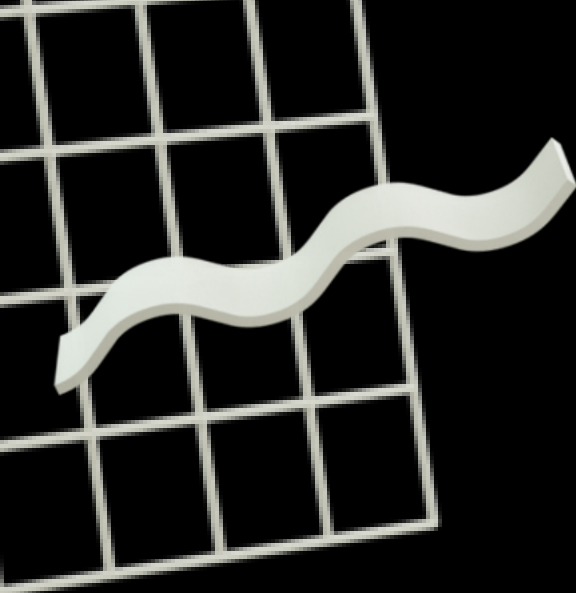
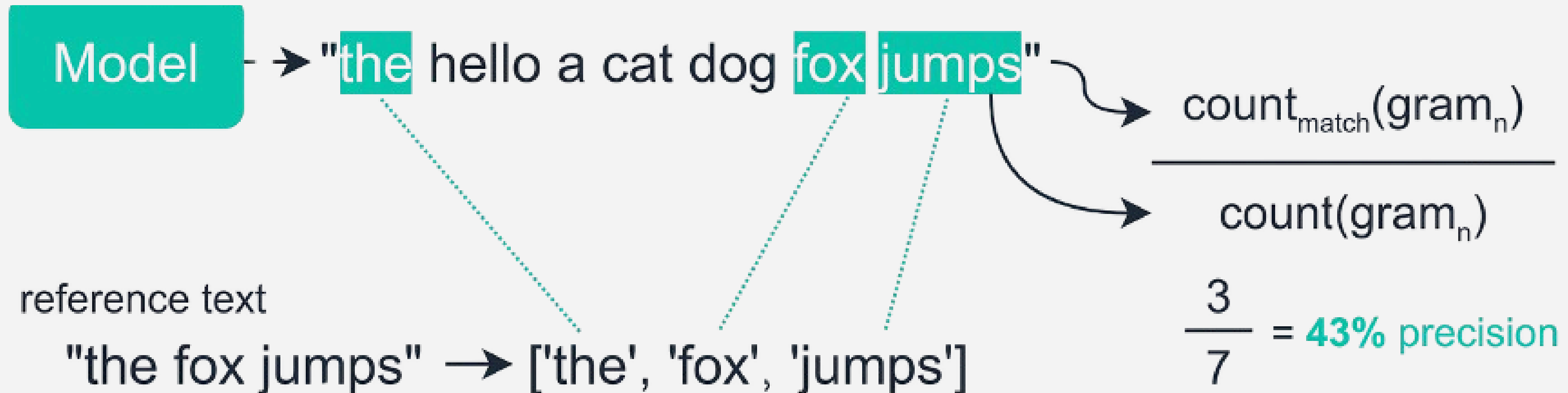# Models Trained

BART

T5 Base

Distil GPT-2

Facebook-opt-125m

Evaluation Metric

Rouge

ROUGE (Recall-Oriented Understudy for Gisting Evaluation) measures word or n-gram overlap between generated and reference texts.
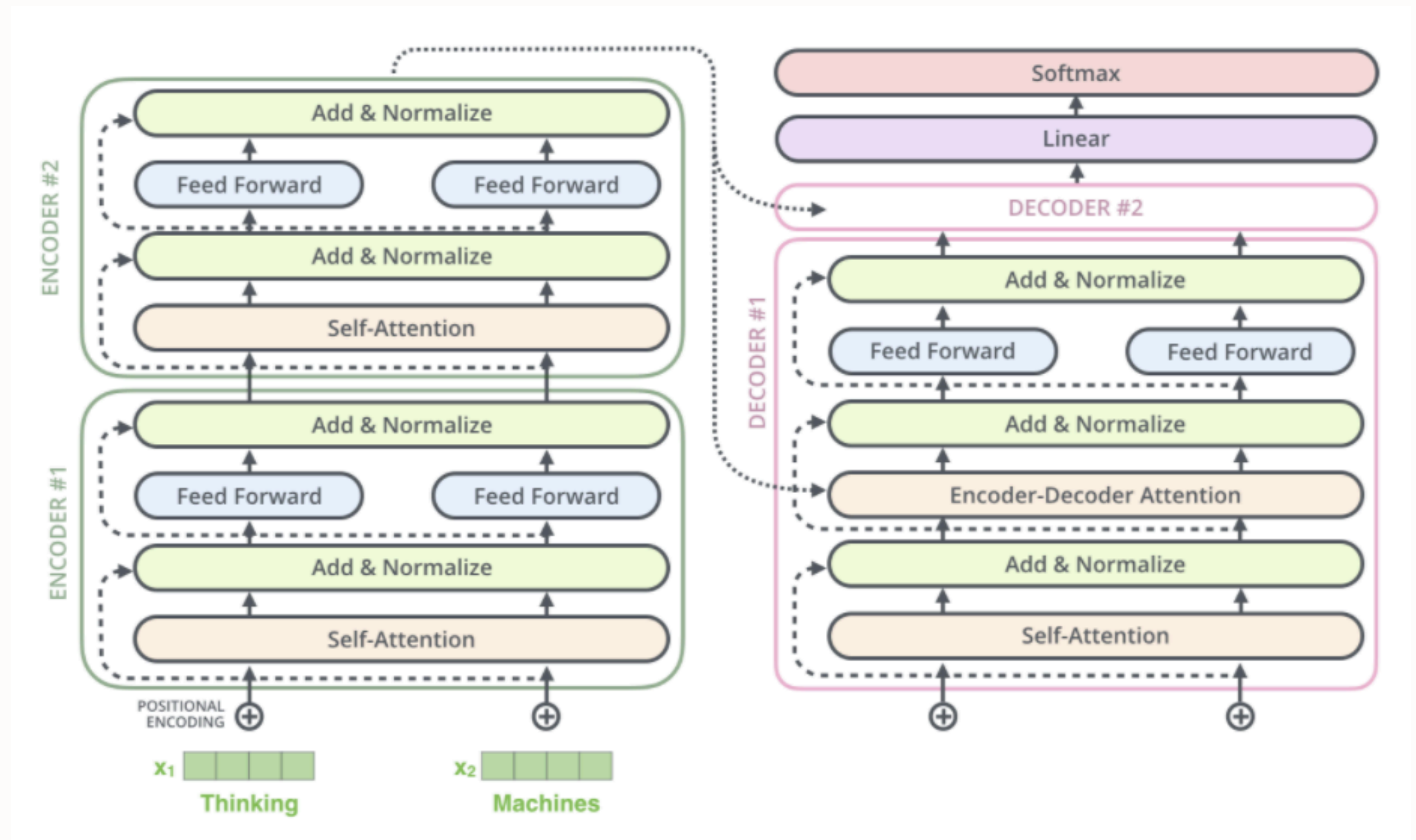
Model → "the hello a cat dog fox jumps"

$$\frac{count_{match}(gram_n)}{count(gram_n)}$$

reference text
"the fox jumps" → ['the', 'fox', 'jumps']

$$\frac{3}{7} = 43\% \text{ precision}$$

T5-Base

Epochs: 5

Batch Size: 4

Rogue1 Score: 0.401

T5-Base

Original Judgement

The trial court convicted the appellants under Section 302(b)/34 P.P.C and sentenced them to life imprisonment. The court also directed each convict to pay Rs. 200,000/- to the legal representatives of the deceased Mst. Bachazul Bakht and Rs. 200,000/- to the legal representatives of the deceased Lal Muhammad.

Sample Predicted Judgement

The appellants were convicted of murder under Section 302(b) PPC and sentenced to imprisonment for life with a fine of Rs. 2,00,000/- each.
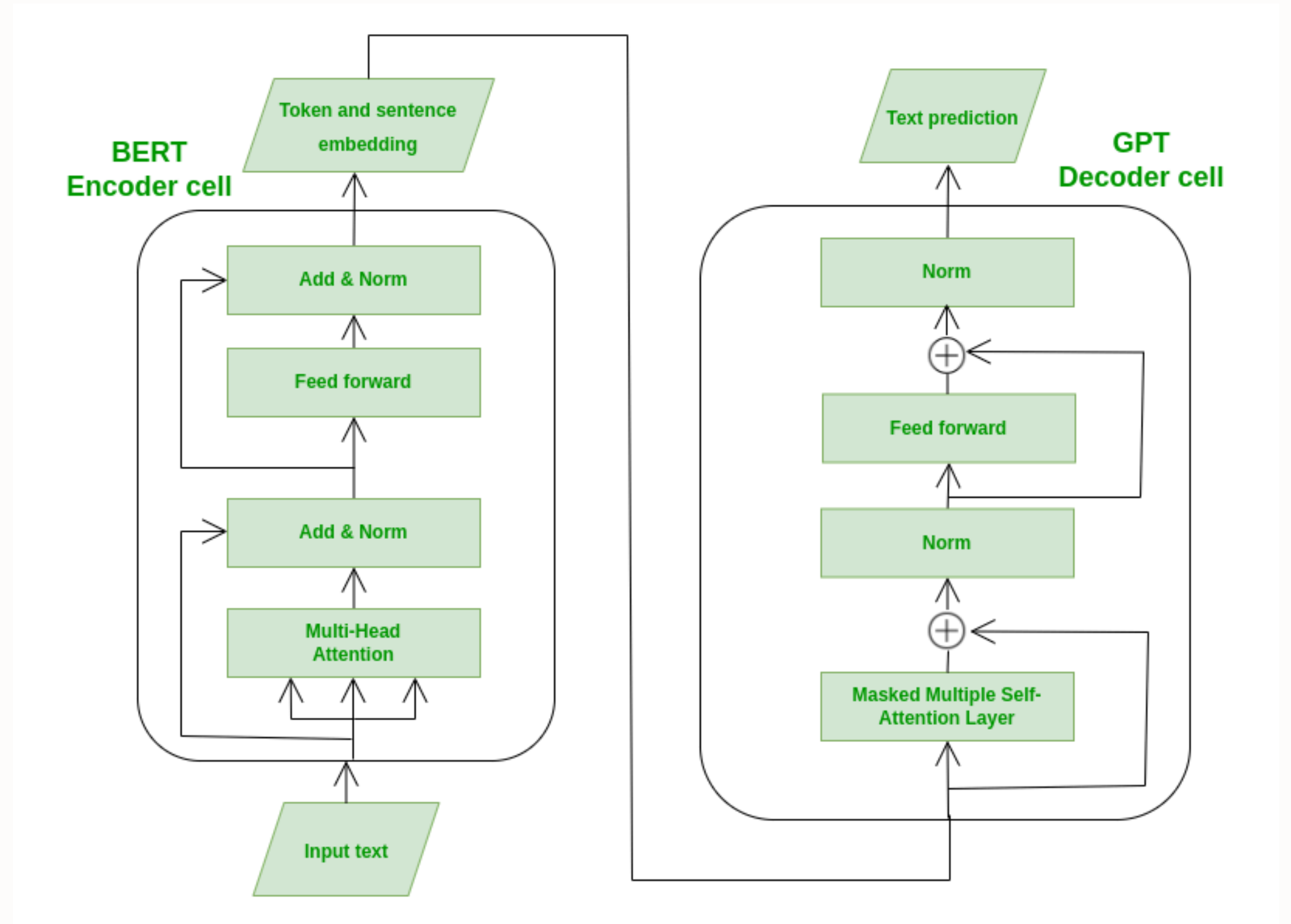
BART

Epochs: 10

Batch Size: 4

Rogue1 Score: 0.473

BART

Original Judgement

The court granted bail to the accused, Qazi Aziz-ur-Rehman, on furnishing bail bonds in the sum of Rs. 200,000/- with two sureties each in the like amount.

Sample Predicted Judgement

The court allowed the bail petition of the accused, Qazi Aziz-ur-Rehman, and directed him to be released on bail provided he furnishes bail bonds in the sum of Rs. 200,000/- with two sureties each in the like amount to the satisfaction of the learned Illaqa Judicial Magistrate/MOD, concerned.
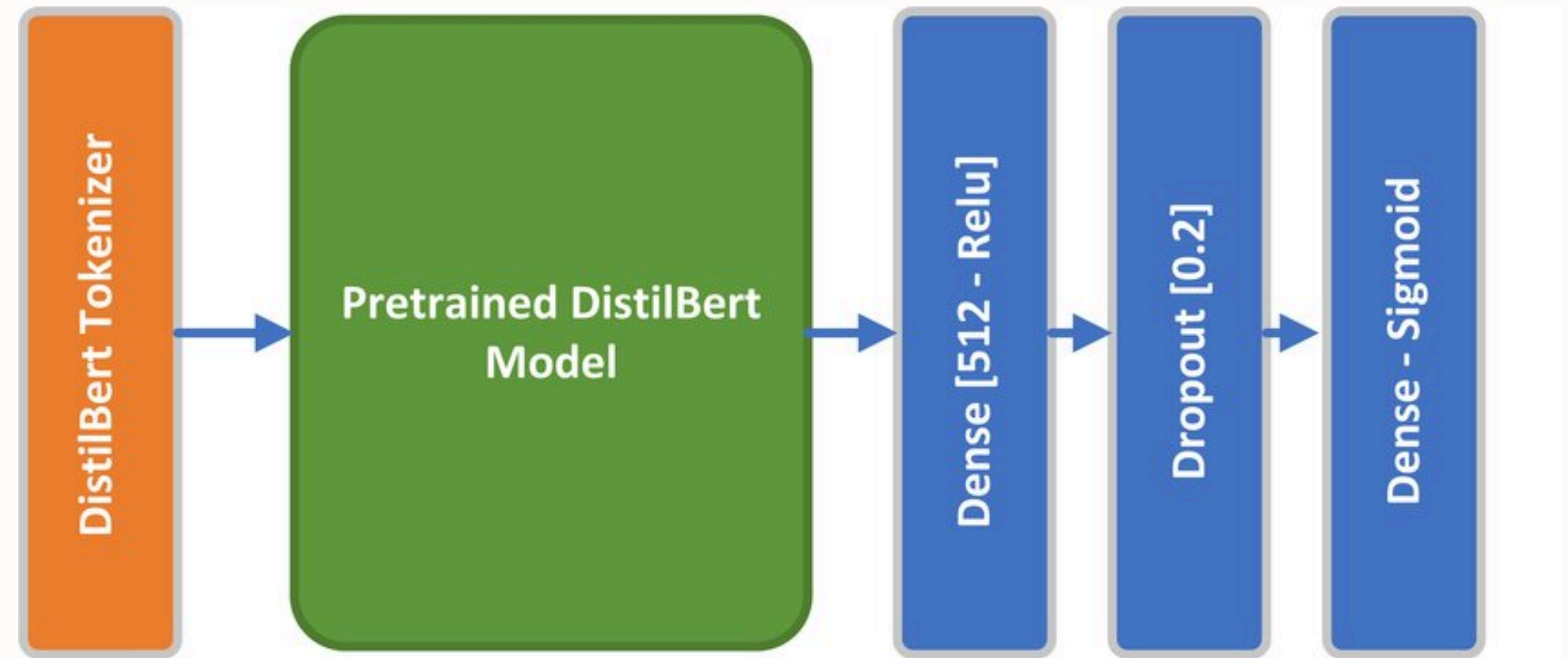
Distil -GPT 2

Epochs: 10

Batch Size: 5

Rogue1 Score: 0.39

Distil GPT-2

Original Judgement

The appellant, Mir Akbar, was found guilty of murdering Raj Mali and sentenced to life imprisonment and a fine of Rs. 5,00,000/- with two sureties each in the like amount to the satisfaction of the learned trial Court.The court also noted that the appellant was not entitled to the benefit of doubt due to the lack of evidence to support his conviction.

Sample Predicted Judgement

The appellant was convicted and sentenced to life imprisonment and a fine of Rs. 5,00,000/- with two sureties each in the like amount to the satisfaction of the learned trial Court.
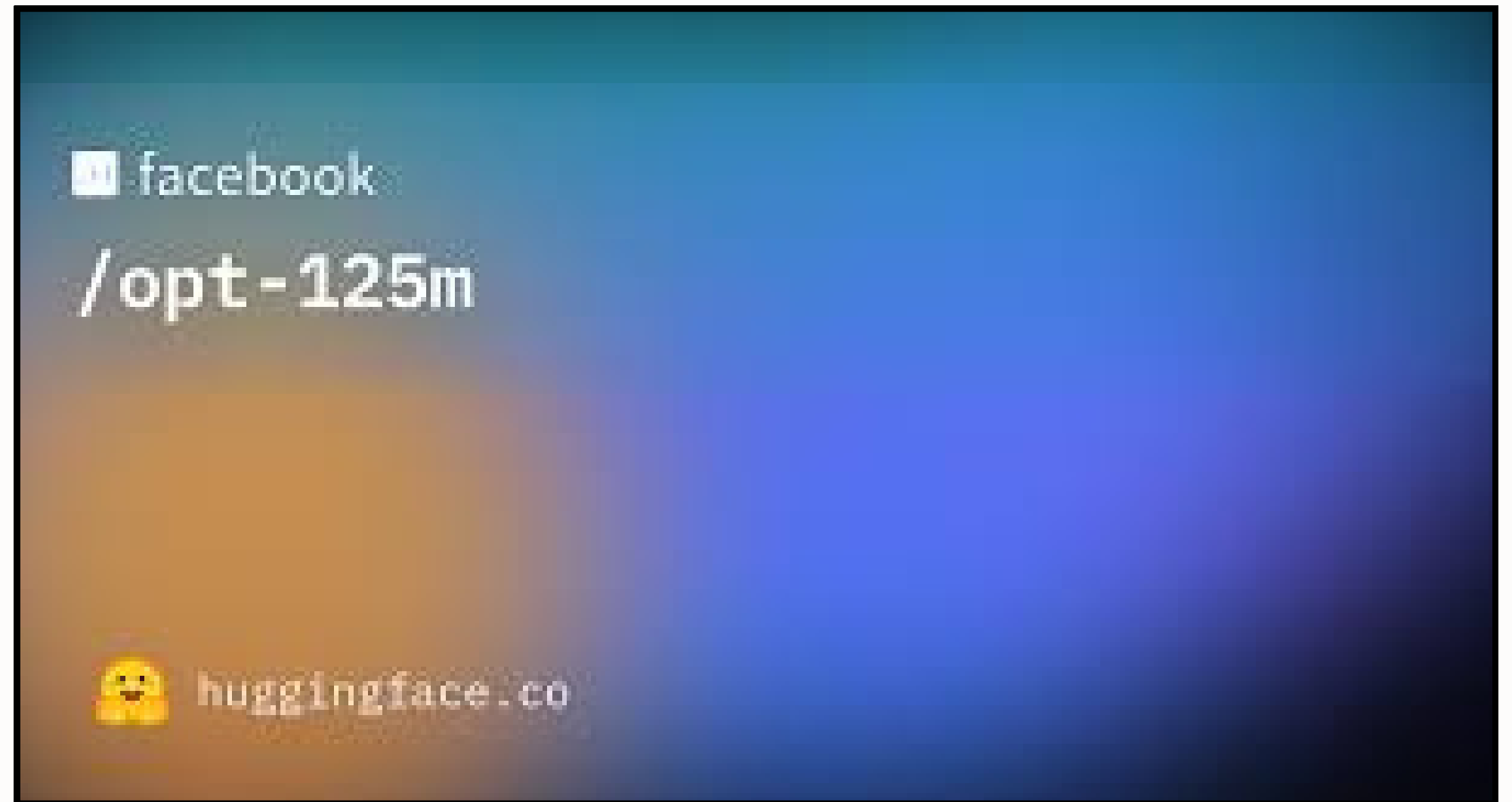
Facebook Opt 125M

Epochs: 10

Batch Size: 3

Rogue1 Score: 0.3155

Facebook-opt-125m

Sample Predicted Judgement

Original Judgement

The petitioners, Ikhtiar, Kashif, and Gul Muhammad, have been granted bail. * The court found that the petitioners did not actively participate in the murder of Nishad Khan, and their intention to kill the complainant was not determined. * The court held that the petitioners are entitled to bail as their case is arguable, and that the mere absconding of the petitioners cannot be a ground for refusing bail. * The petitioners are required to furnish bail bonds in the sum of Rs.3,00,000/- with two local, reliable, and resourceful sureties each to the satisfaction of the learned Illaqa Judicial Magistrate/MOD concerned.

No witnesses: * No eyewitnesses were cited by the court as having seen the occurrence, but some of them were referred to by the complainant as having witnessed the occurrence. the only witness was referred to as being present at the scene of the crime, but his testimony was considered unreliable due to inconsistencies and lack of plausible reasons for his presence at the crime scene. Not mentioned any specific witnesses or their testimonies are mentioned by the judge. [PW-1] 1. PW-2, a police officer, testified that he did not notice anyone coming to the spot after hearing the fire shot. 3. Other witnesses, including police officers and medical professionals, testified regarding the investigation and recovery of evidence, but their testimonies were found to be unreliable and lacked independent corroboration.
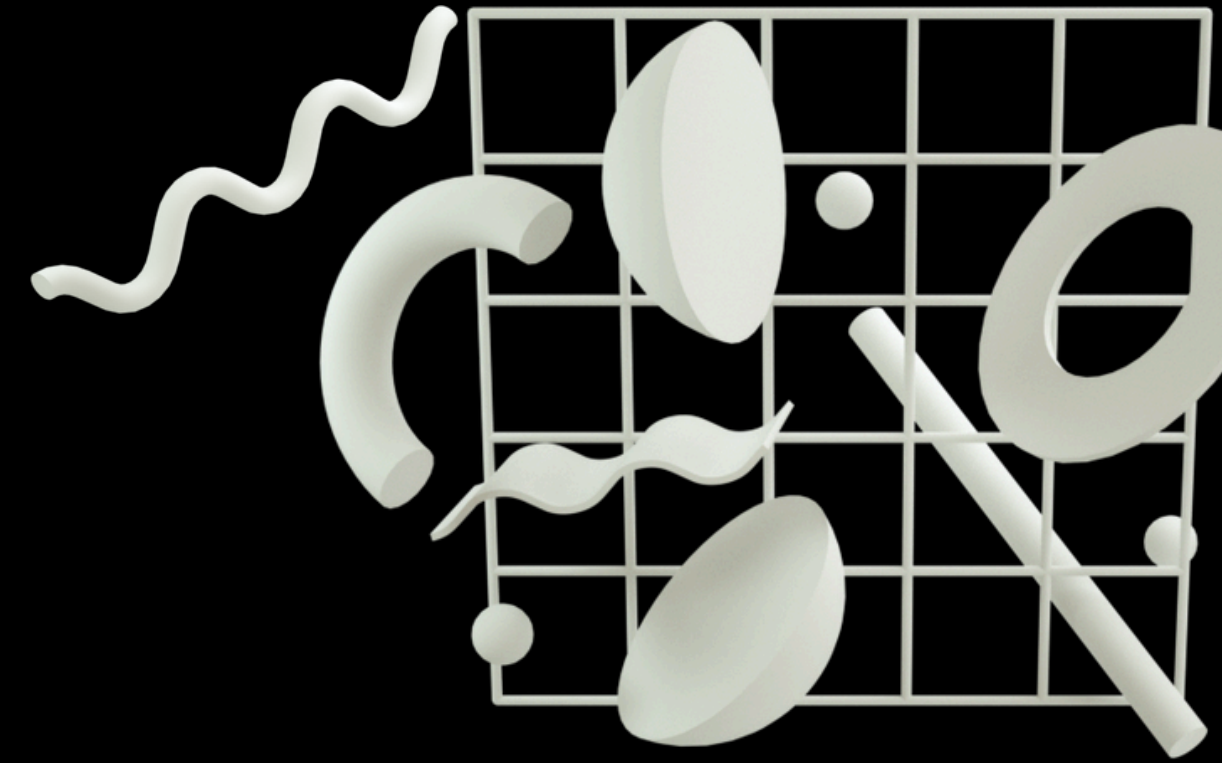
Differences Compared to Previous Researches

	Our Project	**Research Papers**
Models	Transformers: BART, T5	Classification: SVM RNN: LSTM
Evaluation Metrics	ROGUE	F1, Precision

FUTURE WORKS

- Using bigger Transformer models like Llama 3.2 1b and Llama Quantized int4 3b.
- Focusing on one aspect of Criminal Judgements like Murder or Theft etc.
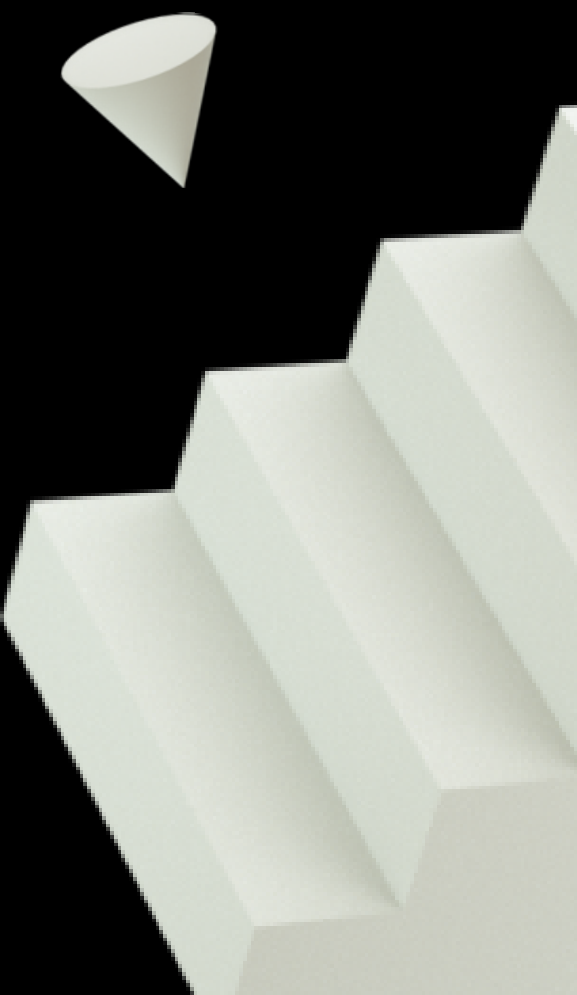- Having a bigger dataset of only one type of Criminal Judgements.

Thank You!
Any Questions ?

Citations

1. https://caselaw.shc.gov.pk/caselaw/search-all/search
2. https://www.peshawarhighcourt.gov.pk/PHCCMS/reportedJudgments.php
3. https://ieeexplore.ieee.org/abstract/document/10397023
4. https://link.springer.com/chapter/10.1007/978-981-19-4546-5_37
5. https://scholars.cityu.edu.hk/files/58404216/Prison_Term_Prediction_on_Criminal_Case_Description_with_Deep_Learning.pdf
6. https://arxiv.org/abs/1707.09168