

DAFTAR ISI

HALAMAN PERSEMBAHAN	i
ABSTRAK	ii
ABSTRACT	iii
KATA PENGANTAR.....	iv
DAFTAR ISI.....	v
DAFTAR GAMBAR.....	ix
DAFTAR TABEL	x
DAFTAR LAMPIRAN	xi
BAB I PENDAHULUAN	1
1.1 Latar Belakang Penelitian	1
1.2 Rumusan Masalah Penelitian	3
1.3 Tujuan Penelitian.....	3
1.4 Batasan Masalah Penelitian.....	3
1.5 Kerangka Pemikiran Penelitian	4
1.6 Sistematika Penulisan.....	5
BAB II KAJIAN LITERATUR	7
2.1 Tinjauan Pustaka	7
2.2 Landasan Teori	9
2.2.1 <i>Artificial Intelligence dan Machine Learning</i>	9
2.2.2 <i>Deep Learning</i>	9
2.2.3 <i>Natural Language Processing (NLP)</i>	10
2.2.4 <i>Large Language Models (LLM)</i>	10
2.2.5 <i>Llama 3</i>	11
2.2.6 <i>Chatbot</i>	11
2.2.6.1 Chatbot Rule-Based	12
2.2.6.2 Artificial Intelligence Chatbot.....	12
2.2.7 <i>Retrieval-Augmented Generation (RAG)</i>	12
2.2.8 <i>Hallucination</i>	13
2.2.9 <i>BERTScore</i>	14
2.2.9.1 Precision.....	14

2.2.9.2 Recall.....	15
2.2.9.3 F1 Score	15
2.2.10 CRISP-DM.....	16
2.2.10.1 Business Understanding	17
2.2.10.2 Data Understanding.....	17
2.2.10.3 Data Preparation.....	17
2.2.10.4 Modeling	17
2.2.10.5 Evaluation	17
2.2.10.6 Deployment.....	17
BAB III METODOLOGI PENELITIAN	19
3.1 <i>Business Understanding</i>	20
3.1.1 <i>Determine Business Objective</i>	20
3.1.2 <i>Assess Situation</i>	20
3.1.3 <i>Determining Data Mining Goals</i>	21
3.2 <i>Data Understanding</i>	21
3.2.1 <i>Data Collection</i>	22
3.2.2 <i>Data Description</i>	22
3.2.3 <i>Explore Data</i>	23
3.3 <i>Data Preparation</i>	23
3.3.1 <i>Data Cleaning</i>	23
3.3.2 <i>Data Transformation</i>	24
3.3.3 <i>Data Splitting</i>	24
3.4 <i>Modeling</i>	24
3.4.1 <i>Select Modeling Technique</i>	24
3.4.2 <i>Generate Test Design</i>	25
3.4.3 <i>Build Model</i>	25
3.5 <i>Evaluation</i>	26
3.5.1 <i>Evaluation Result</i>	26
3.5.2 <i>Analysis Evaluation Result</i>	27
3.6 <i>Deployment</i>	27
3.6.1 <i>Deployment Plan</i>	27

3.6.2 Produce Final Report	28
BAB IV HASIL DAN PEMBAHASAN	29
4.1 Hasil.....	29
4.1.1 Business Understanding	29
4.1.1.1 Determine Business Objective.....	29
4.1.1.2 Assess Situation	29
4.1.1.3 Determining Data Mining Goals	30
4.1.2 Data Understanding	30
4.1.2.1 Data Collection	30
4.1.2.2 Data Description.....	30
4.1.2.3 Explore Data	32
4.1.3 Data Preparation.....	33
4.1.3.1 Data Cleaning.....	33
4.1.3.2 Data Transformation.....	35
4.1.3.3 Data Splitting	36
4.1.4 Modeling	37
4.1.4.1 Select Modeling Technique.....	37
4.1.4.2 Generate Test Design	37
4.1.4.3 Build Model.....	37
4.1.5 Evaluation.....	38
4.1.5.1 Evaluation Result	38
4.1.5.2 Analysis Evaluation Result	39
4.1.6 Deployment	40
4.1.6.1 Deployment Plan.....	41
4.1.6.2 Produce Final Report.....	42
4.2 Pembahasan	42
4.2.1 Pembahasan Rumusan Masalah 1	42
4.2.2 Pembahasan Rumusan Masalah 2.....	43
BAB V SIMPULAN DAN SARAN.....	44

5.1 Simpulan.....	44
5.2 Saran.....	45
DAFTAR PUSTAKA.....	47
LAMPIRAN.....	52
DAFTAR RIWAYAT HIDUP	53

