

DAFTAR ISI

	Hlm.
ABSTRAK	i
<i>ABSTRACT</i>	ii
KATA PENGANTAR	iii
DAFTAR ISI	iv
DAFTAR GAMBAR	viii
DAFTAR TABEL	ix
DAFTAR LAMPIRAN	x
BAB I PENDAHULUAN	1
1.1 Latar Belakang	1
1.2 Perumusan Masalah	3
1.3 Tujuan Penelitian	3
1.4 Batasan Masalah Penelitian	3
1.5 Manfaat Penelitian	5
1.6 Kerangka Pemikiran Penelitian	6
1.7 Sistematika Penulisan	7
BAB II KAJIAN LITERATUR	8
2.1 <i>State of the Art</i>	8
2.2 Landasan Teori	16
2.2.1 Analisis Sentimen	16
2.2.2 <i>Artificial Intellegence dan Machine Learning</i>	16
2.2.3 <i>Support Vector Machine (SVM)</i>	17
2.2.3.1 <i>Kernel Linear</i>	18
2.2.3.2 <i>Kernel Polynomial</i>	18
2.2.3.3 <i>Kernel Sigmoid</i>	19
2.2.3.4 <i>Kernel Radial Basis Function (RBF)</i>	19
2.2.4 <i>Text Mining</i>	20
2.2.5 <i>Text Preprocessing</i>	20
2.2.6 <i>Feature Extraction</i>	21
2.2.7 CRISP-DM	21
2.2.8.1 <i>Bussiness Understanding</i>	22
2.2.8.2 <i>Data Understanding</i>	22

2.2.8.3 <i>Data preparation</i>	23
2.2.8.4 <i>Modelling</i>	23
2.2.8.5 <i>Evaluation</i>	23
2.2.8.6 <i>Deployment</i>	23
2.2.8 <i>Python</i>	23
2.2.9 <i>Pengujian</i>	24
2.2.9.1 <i>Confusion Matrix</i>	24
2.2.9.2 <i>Stratified K-Fold Cross Validation</i>	26
BAB III METODOLOGI PENELITIAN	28
3.1 <i>Business Understanding</i>	29
3.1.1 <i>Determine Business</i>	29
3.1.2 <i>Asses Situation</i>	29
3.1.3 <i>Determine Data Minig Goals</i>	29
3.1.4 <i>Plan Active</i>	30
3.2 <i>Data Understanding</i>	30
3.2.1 <i>Collect Initial Data</i>	31
3.2.2 <i>Describe Data</i>	31
3.2.3 <i>Explore Data</i>	31
3.3 <i>Data Preparation</i>	31
3.1.1 <i>Data Selection</i>	32
3.1.2 <i>Data Validation</i>	32
3.3.3 <i>Data Cleaning</i>	33
3.3.3 <i>Data Preprocessing</i>	33
3.3.4 <i>Labeling Data</i>	33
3.3.5 <i>Data Splitting</i>	34
3.4 <i>Modelling</i>	34
3.4.1 <i>Select Modelling Technique</i>	34
3.4.2 <i>Build Model</i>	34
3.4.3 <i>Generate Test Design</i>	35
3.5 <i>Evaluation</i>	36
3.5.1 <i>Evaluate Result</i>	37
3.5.2 <i>Determine Next Step</i>	37
3.6 <i>Deployment</i>	37
3.6.1 <i>Deployment Plan</i>	38
3.6.2 <i>Produce Final Report</i>	38
BAB IV HASIL DAN PEMBAHASAN	39

4.1 Hasil	39
4.2.1 <i>Business Understanding</i>	39
4.2.1.1 <i>Determine Business</i>	39
4.2.1.2 <i>Asses Situation</i>	39
4.2.1.3 <i>Determine Data Mining Goals</i>	40
4.2.1.4 <i>Plan Active</i>	40
4.1.2 <i>Data Understanding</i>	41
4.1.2.1 <i>Collect Initial Data</i>	41
4.1.2.2 <i>Describe Data</i>	42
4.1.2.3 <i>Explore Data</i>	42
4.1.3 <i>Data Preparation</i>	44
4.1.3.1 <i>Data Selection</i>	44
4.1.3.2 <i>Data Validation</i>	44
4.1.3.3 <i>Data Cleaning</i>	46
4.1.3.3 <i>Data Preprocessing</i>	47
4.1.3.4 <i>Labeling Data</i>	49
4.1.3.5 <i>Data Splitting</i>	50
4.1.4 <i>Hasil Modelling</i>	51
4.1.4.1 <i>Select Modelling Tecnique</i>	51
4.1.4.2 <i>Build Model</i>	52
4.1.4.3 <i>Generate Test Design</i>	53
4.1.4.2 <i>Skenario Penelitian 80:20 Best Parameter</i>	54
4.1.4.3 <i>Skenario Penelitian 70:30 Best Parameter</i>	55
4.1.4.4 <i>Skenario Penelitian 60:40 Best Parameter</i>	57
4.1.5 <i>Hasil Evaluation</i>	58
4.1.5.1 <i>Evaluate Result</i>	60
4.1.5.2 <i>Analysist Sentiment Result and Prediction Label</i>	63
4.1.6 <i>Hasil Deployment</i>	66
4.1.6.1 <i>Deployment Plan</i>	66
4.1.6.2 <i>Peoduce Final</i>	66
4.2 Pembahasan	67
4.2.1 <i>Rumusan Masalah 1</i>	67
4.2.2 <i>Rumusan Masalah 2</i>	68
BAB V SIMPULAN DAN SARAN.....	70
5.1 <i>Simpulan</i>	70
5.2 <i>Saran</i>	71

DAFTAR PUSTAKA	72
LAMPIRAN	77
DAFTAR RIWAYAT HIDUP	84



DAFTAR GAMBAR

	Hlm.
Gambar 1.1 Kerangka Pemikiran Penelitian	6
Gambar 2.1 Konsep Dasar SVM	17
Gambar 3.1 Tahapan Metode CRISP-DM	28
Gambar 3.2 Build Model.....	35
Gambar 4.1 Proses <i>Scraping</i> Data	41
Gambar 4.2 Hasil <i>Scraping</i> Google Play Store.....	42
Gambar 4.3 Distribusi <i>Rating</i>	43
Gambar 4.4 <i>Word Frequency</i>	43
Gambar 4.5 Hasil Seleksi Data.....	44
Gambar 4.6 Proses Pengecekan Nilai Kosong	45
Gambar 4.7 Proses Pengecekan Duplikasi Data.....	45
Gambar 4.8 Hasil <i>Data Cleaning</i>	47
Gambar 4.9 Hasil <i>Normalization</i> dan <i>Stopword Removing</i>	48
Gambar 4.10 Hasil <i>stemming</i> sastrawi.....	48
Gambar 4.11 Hasil <i>Labelling Data</i>	49
Gambar 4.12 Hasil <i>Splitting data</i>	50
Gambar 4.14 <i>Splitting data train</i> dan <i>valid</i>	51
Gambar 4.15 Hasil TF-IDF	52
Gambar 4.16 Implementasi Model SVM	53
Gambar 4.17 <i>Fine-Tuning Parameter with RandomizedSearchCV</i>	53
Gambar 4.18 <i>Heatmap confusion matrix Linear</i>	54
Gambar 4.19 <i>Heatmap confusion matrix sigmoid</i>	56
Gambar 4.20 <i>Heatmap confusion matrix kernel Polynomial</i>	57
Gambar 4.21 Hasil <i>Stratified 10-fold Cross Validation</i>	60
Gambar 4.22 Hasil Prediksi Label.....	64
Gambar 4.23 Hasil Distribusi Sentimen	64
Gambar 4.24 WordCloud Sentimen Positif.....	65
Gambar 4.25 WordCloud Sentimen Negatif	65
Gambar 4.26 <i>Interface Gradio</i>	67

DAFTAR TABEL

	Hlm.
Tabel 2.1 <i>State of the Art</i>	8
Tabel 2.2 <i>Confusion Matrix</i>	26
Tabel 3.1 Informasi dataset	30
Tabel 3.2 Skenario Penelitian.....	36
Tabel 4.1 Hasil <i>confusion matrix Kernel Linear</i>	55
Tabel 4.2 Hasil <i>Confusion Matrix Kernel Sigmoid</i>	56
Tabel 4.3 Hasil <i>confusion matrix kernel Polynomial</i>	58
Tabel 4.5 Perbandingan Evaluasi Hasil Skenario.....	58
Tabel 4.6 Perbandingan dengan Penelitian Terdahulu	61

