

TABLE A1. Naive Bayes Classification results in same format as paper

| | Sampled Dataset (our data) | | | | | | | | | | | |
|--|---|--------|------|-----------|--------|------|----------------|--------|------|-----------|--------|------|
| | Bug | | | Feature | | | UserExperience | | | Rating | | |
| | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 |
| 01_bow | 0.68 | 0.33 | 0.44 | 0.75 | 0.42 | 0.54 | 0.91 | 0.74 | 0.82 | 0.58 | 0.80 | 0.68 |
| 02_bigram | 0.56 | 0.88 | 0.68 | 0.53 | 0.86 | 0.65 | 0.57 | 0.97 | 0.72 | 0.77 | 0.35 | 0.48 |
| 03_bow-bigram | 0.68 | 0.48 | 0.57 | 0.61 | 0.51 | 0.56 | 0.85 | 0.87 | 0.86 | 0.67 | 0.72 | 0.70 |
| 04_bow-lemmatize | 0.73 | 0.41 | 0.53 | 0.71 | 0.40 | 0.51 | 0.88 | 0.77 | 0.82 | 0.60 | 0.82 | 0.69 |
| 05_bow-remove_stopwords | 0.68 | 0.22 | 0.34 | 0.73 | 0.26 | 0.38 | 0.86 | 0.49 | 0.62 | 0.56 | 0.91 | 0.69 |
| 06_bow-lemmatize-remove_stopwords | 0.68 | 0.22 | 0.34 | 0.80 | 0.28 | 0.41 | 0.88 | 0.54 | 0.67 | 0.56 | 0.89 | 0.69 |
| 07_bow-bigram-lemmatize-remove_stopwords | 0.74 | 0.34 | 0.47 | 0.67 | 0.33 | 0.44 | 0.90 | 0.67 | 0.76 | 0.58 | 0.86 | 0.70 |
| 08_bow-lemmatize-rating | 0.72 | 0.36 | 0.48 | 0.72 | 0.42 | 0.53 | 0.90 | 0.72 | 0.80 | 0.61 | 0.83 | 0.70 |
| 09_bow-rating-sentiment1 | 0.74 | 0.29 | 0.42 | 0.73 | 0.44 | 0.55 | 0.89 | 0.62 | 0.73 | 0.60 | 0.82 | 0.69 |
| 10_bow-rating-tense-sentiment1 | 0.70 | 0.28 | 0.40 | 0.73 | 0.44 | 0.55 | 0.88 | 0.54 | 0.67 | 0.61 | 0.78 | 0.68 |
| 11_bigram-rating-sentiment1 | 0.61 | 0.71 | 0.66 | 0.54 | 0.79 | 0.64 | 0.75 | 0.85 | 0.80 | 0.92 | 0.54 | 0.68 |
| 12_bigram-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.53 | 0.17 | 0.26 | 0.56 | 0.63 | 0.59 | 1.00 | 0.13 | 0.23 | 0.75 | 0.60 | 0.67 |
| 13_bow-bigram-tense-sentiment1 | 0.65 | 0.41 | 0.51 | 0.61 | 0.51 | 0.56 | 0.86 | 0.82 | 0.84 | 0.70 | 0.72 | 0.71 |
| 14_bow-bigram-lemmatize-rating-tense | 0.62 | 0.53 | 0.57 | 0.61 | 0.51 | 0.56 | 0.88 | 0.90 | 0.89 | 0.72 | 0.72 | 0.72 |
| 15_bow-bigram-remove_stopwords-rating-tense-sentiment1 | 0.69 | 0.19 | 0.30 | 0.71 | 0.35 | 0.47 | 0.87 | 0.33 | 0.48 | 0.59 | 0.83 | 0.69 |
| 16_bow-lemmatize-remove_stopwords-rating-tense-sentiment1 | 0.64 | 0.16 | 0.25 | 0.75 | 0.28 | 0.41 | 0.80 | 0.21 | 0.33 | 0.59 | 0.86 | 0.70 |
| 17_bow-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.64 | 0.12 | 0.20 | 0.75 | 0.28 | 0.41 | 0.86 | 0.15 | 0.26 | 0.59 | 0.86 | 0.70 |
| Sampled Dataset (our data) (avg) | 0.66 | 0.36 | 0.44 | 0.68 | 0.45 | 0.51 | 0.85 | 0.61 | 0.66 | 0.65 | 0.76 | 0.68 |
| | Original Data | | | | | | | | | | | |
| | Bug | | | Feature | | | UserExperience | | | Rating | | |
| | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 |
| 01_bow | 0.75 | 0.67 | 0.71 | 0.74 | 0.53 | 0.62 | 0.84 | 0.63 | 0.72 | 0.67 | 0.85 | 0.75 |
| 02_bigram | 0.57 | 0.98 | 0.72 | 0.60 | 0.96 | 0.74 | 0.64 | 0.99 | 0.78 | 0.85 | 0.37 | 0.52 |
| 03_bow-bigram | 0.76 | 0.84 | 0.80 | 0.74 | 0.76 | 0.75 | 0.79 | 0.92 | 0.85 | 0.76 | 0.79 | 0.77 |
| 04_bow-lemmatize | 0.78 | 0.64 | 0.70 | 0.76 | 0.56 | 0.64 | 0.84 | 0.62 | 0.71 | 0.66 | 0.83 | 0.73 |
| 05_bow-remove_stopwords | 0.82 | 0.66 | 0.73 | 0.82 | 0.48 | 0.60 | 0.85 | 0.57 | 0.68 | 0.69 | 0.87 | 0.77 |
| 06_bow-lemmatize-remove_stopwords | 0.82 | 0.67 | 0.74 | 0.77 | 0.51 | 0.61 | 0.86 | 0.60 | 0.70 | 0.68 | 0.86 | 0.76 |
| 07_bow-bigram-lemmatize-remove_stopwords | 0.79 | 0.82 | 0.80 | 0.77 | 0.68 | 0.72 | 0.81 | 0.90 | 0.85 | 0.73 | 0.82 | 0.77 |
| 08_bow-lemmatize-rating | 0.80 | 0.67 | 0.73 | 0.75 | 0.55 | 0.63 | 0.83 | 0.63 | 0.71 | 0.69 | 0.84 | 0.76 |
| 09_bow-rating-sentiment1 | 0.81 | 0.68 | 0.74 | 0.77 | 0.55 | 0.64 | 0.81 | 0.66 | 0.73 | 0.68 | 0.87 | 0.76 |
| 10_bow-rating-tense-sentiment1 | 0.79 | 0.69 | 0.74 | 0.77 | 0.58 | 0.66 | 0.83 | 0.68 | 0.75 | 0.68 | 0.85 | 0.75 |
| 11_bigram-rating-sentiment1 | 0.62 | 0.96 | 0.76 | 0.58 | 0.96 | 0.73 | 0.71 | 0.98 | 0.82 | 0.85 | 0.50 | 0.63 |
| 12_bigram-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.68 | 0.87 | 0.76 | 0.60 | 0.89 | 0.71 | 0.75 | 0.90 | 0.82 | 0.81 | 0.53 | 0.64 |
| 13_bow-bigram-tense-sentiment1 | 0.76 | 0.84 | 0.80 | 0.76 | 0.78 | 0.77 | 0.81 | 0.91 | 0.86 | 0.77 | 0.79 | 0.78 |
| 14_bow-bigram-lemmatize-rating-tense | 0.76 | 0.86 | 0.81 | 0.75 | 0.78 | 0.77 | 0.79 | 0.91 | 0.85 | 0.76 | 0.77 | 0.76 |
| 15_bow-bigram-remove_stopwords-rating-tense-sentiment1 | 0.78 | 0.79 | 0.79 | 0.77 | 0.70 | 0.73 | 0.80 | 0.89 | 0.84 | 0.75 | 0.81 | 0.78 |
| 16_bow-lemmatize-remove_stopwords-rating-tense-sentiment1 | 0.81 | 0.68 | 0.74 | 0.77 | 0.56 | 0.65 | 0.87 | 0.72 | 0.79 | 0.69 | 0.86 | 0.77 |
| 17_bow-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.86 | 0.69 | 0.76 | 0.78 | 0.58 | 0.67 | 0.87 | 0.71 | 0.78 | 0.71 | 0.87 | 0.79 |
| Original Data Results (avg) | 0.76 | 0.77 | 0.75 | 0.74 | 0.67 | 0.68 | 0.81 | 0.78 | 0.78 | 0.73 | 0.77 | 0.73 |
| | Reported Results From Paper (Table 4, pg 318) | | | | | | | | | | | |
| | Bug | | | Feature | | | UserExperience | | | Rating | | |
| | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 | Precision | Recall | F1 |
| 01_bow | 0.79 | 0.65 | 0.71 | 0.76 | 0.54 | 0.63 | 0.82 | 0.59 | 0.68 | 0.67 | 0.85 | 0.75 |
| 02_bigram | 0.68 | 0.98 | 0.80 | 0.68 | 0.97 | 0.80 | 0.70 | 0.99 | 0.82 | 0.91 | 0.62 | 0.73 |
| 03_bow-bigram | 0.85 | 0.90 | 0.87 | 0.86 | 0.85 | 0.85 | 0.87 | 0.91 | 0.89 | 0.85 | 0.89 | 0.87 |
| 04_bow-lemmatize | 0.88 | 0.74 | 0.80 | 0.86 | 0.65 | 0.74 | 0.90 | 0.67 | 0.77 | 0.73 | 0.91 | 0.81 |
| 05_bow-remove_stopwords | 0.86 | 0.69 | 0.76 | 0.86 | 0.65 | 0.74 | 0.91 | 0.67 | 0.77 | 0.74 | 0.91 | 0.81 |
| 06_bow-lemmatize-remove_stopwords | 0.85 | 0.71 | 0.77 | 0.87 | 0.67 | 0.76 | 0.91 | 0.67 | 0.77 | 0.75 | 0.90 | 0.82 |
| 07_bow-bigram-lemmatize-remove_stopwords | 0.85 | 0.91 | 0.88 | 0.86 | 0.83 | 0.85 | 0.89 | 0.94 | 0.91 | 0.85 | 0.90 | 0.87 |
| 08_bow-lemmatize-rating | 0.85 | 0.73 | 0.78 | 0.89 | 0.64 | 0.74 | 0.90 | 0.67 | 0.77 | 0.73 | 0.89 | 0.80 |
| 09_bow-rating-sentiment1 | 0.89 | 0.72 | 0.79 | 0.89 | 0.60 | 0.71 | 0.92 | 0.73 | 0.81 | 0.75 | 0.93 | 0.83 |
| 10_bow-rating-tense-sentiment1 | 0.87 | 0.71 | 0.78 | 0.87 | 0.60 | 0.70 | 0.92 | 0.69 | 0.79 | 0.74 | 0.90 | 0.81 |
| 11_bigram-rating-sentiment1 | 0.73 | 0.98 | 0.83 | 0.71 | 0.96 | 0.81 | 0.75 | 0.99 | 0.85 | 0.92 | 0.69 | 0.79 |
| 12_bigram-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.72 | 0.97 | 0.82 | 0.70 | 0.94 | 0.80 | 0.75 | 0.98 | 0.85 | 0.92 | 0.72 | 0.81 |
| 13_bow-bigram-tense-sentiment1 | 0.87 | 0.88 | 0.87 | 0.85 | 0.83 | 0.83 | 0.88 | 0.94 | 0.91 | 0.83 | 0.87 | 0.85 |
| 14_bow-bigram-lemmatize-rating-tense | 0.88 | 0.88 | 0.88 | 0.87 | 0.84 | 0.85 | 0.89 | 0.94 | 0.92 | 0.84 | 0.90 | 0.87 |
| 15_bow-bigram-remove_stopwords-rating-tense-sentiment1 | 0.88 | 0.89 | 0.88 | 0.86 | 0.84 | 0.85 | 0.87 | 0.93 | 0.90 | 0.83 | 0.89 | 0.86 |
| 16_bow-lemmatize-remove_stopwords-rating-tense-sentiment1 | 0.88 | 0.71 | 0.79 | 0.87 | 0.64 | 0.74 | 0.91 | 0.72 | 0.80 | 0.73 | 0.90 | 0.80 |
| 17_bow-lemmatize-remove_stopwords-rating-tense-sentiment2 | 0.87 | 0.71 | 0.78 | 0.86 | 0.68 | 0.76 | 0.91 | 0.73 | 0.81 | 0.75 | 0.90 | 0.82 |
| Paper Results (avg) | 0.84 | 0.81 | 0.81 | 0.83 | 0.75 | 0.77 | 0.86 | 0.81 | 0.82 | 0.80 | 0.86 | 0.82 |