

Q1: Report the 10-fold cross-validation result in terms of precision, recall, and F-score.

Precision	Recall	F1 Score
0.61	0.61	0.61
0.63	0.62	0.62
0.59	0.59	0.59
0.58	0.58	0.58
0.61	0.60	0.60
0.61	0.60	0.60
0.57	0.57	0.57
0.62	0.61	0.62
0.62	0.62	0.62
0.64	0.63	0.63

Average Precision: 0.61

Average Recall: 0.60

Average F1-score: 0.60

Q2: Report results of feature ablation study and state which feature has contributed most towards correctly predicting a particular class

Feature Ablation Study :

Feature: Length

F1-Score (without Length): 0.60

F1-Score Change: 0.01 ***Feature:***

Word n-gram

F1-Score (without Word n-gram): 0.61

F1-Score Change: 0.00

Feature: POS Tag Unigrams

F1-Score (without POS Tag Unigrams): 0.60

F1-Score Change: 0.01

Q3: Report precision, recall, and F1-score measures on test sets using models based on the gini index, mis-classification error and cross-entropy.

Gini Index Criterion:

	<i>precision</i>	<i>recall</i>	<i>f1-score</i>
<i>ABBR</i>	<i>1.00</i>	<i>0.78</i>	<i>0.88</i>
<i>DESC</i>	<i>0.75</i>	<i>0.93</i>	<i>0.83</i>
<i>ENTY</i>	<i>0.58</i>	<i>0.59</i>	<i>0.58</i>
<i>HUM</i>	<i>0.68</i>	<i>0.69</i>	<i>0.69</i>
<i>LOC</i>	<i>0.72</i>	<i>0.72</i>	<i>0.72</i>
<i>NUM</i>	<i>0.90</i>	<i>0.64</i>	<i>0.75</i>

F1-Score: 0.73

accuracy: 0.73 (500 Samples)

Misclassification Error Criterion:

	<i>precision</i>	<i>recall</i>	<i>f1-score</i>
<i>ABBR</i>	<i>0.88</i>	<i>0.72</i>	<i>0.82</i>
<i>DESC</i>	<i>0.76</i>	<i>0.91</i>	<i>0.83</i>
<i>ENTY</i>	<i>0.52</i>	<i>0.47</i>	<i>0.59</i>

<i>HUM</i>	<i>0.61</i>	<i>0.74</i>	<i>0.67</i>
<i>LOC</i>	<i>0.66</i>	<i>0.64</i>	<i>0.65</i>
<i>NUM</i>	<i>0.87</i>	<i>0.65</i>	<i>0.75</i>

F1-Score: 0.70

accuracy: 0.70 (500 Samples)

Cross-Entropy Criterion:

	<i>precision</i>	<i>recall</i>	<i>f1-score</i>
<i>ABBR</i>	<i>0.89</i>	<i>0.89</i>	<i>0.89</i>
<i>DESC</i>	<i>0.69</i>	<i>0.91</i>	<i>0.79</i>
<i>ENTY</i>	<i>0.61</i>	<i>0.54</i>	<i>0.58</i>
<i>HUM</i>	<i>0.59</i>	<i>0.65</i>	<i>0.62</i>
<i>LOC</i>	<i>0.71</i>	<i>0.67</i>	<i>0.69</i>
<i>NUM</i>	<i>0.80</i>	<i>0.57</i>	<i>0.76</i>

F1-Score: 0.68

accuracy: 0.68 (500 Samples)

Q4: Show whether errors propagated by one model are corrected by other models or not. If yes, then report how many percent of samples are corrected.

Error Propagation Analysis:

Gini to Error Propagation: 30.63% Error

to Gini Propagation: 31.23% Entropy to

Error Propagation: 33.53% Error to

Entropy Propagation: 28.98%