

Feature Engineering: Feature Creation

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[ ] # Create Features for the Bureau and Bureau_balance
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## term of credit granted to the individual with the loan
bur_merge['BUR_END_DAY_RATIO'] = bur_merge['DAYS_CREDIT_ENDDATE'] / bur_merge['DAYS_CREDIT']
bur_merge['BUR_END_DAY_RATIO'].replace([np.inf, -np.inf], np.nan, inplace=True)
bur_merge['BUR_END_DAY_RATIO'] = bur_merge['BUR_END_DAY_RATIO'].fillna(bur_merge['BUR_END_DAY_RATIO'].mean())

## amount repaid per year
bur_merge['BUR_DEBT_ANNUITY_RATIO'] = bur_merge['AMT_CREDIT_SUM_DEBT'] / bur_merge['AMT_ANNUITY']
bur_merge['BUR_DEBT_ANNUITY_RATIO'].replace([np.inf, -np.inf], np.nan, inplace=True)
bur_merge['BUR_DEBT_ANNUITY_RATIO'] = bur_merge['BUR_DEBT_ANNUITY_RATIO'].fillna(bur_merge['BUR_DEBT_ANNUITY_RATIO'].mean())

# debt to limit ratio - responsibility with credit
bur_merge['BUR_DEBT_LIMIT_RATIO'] = bur_merge['AMT_CREDIT_SUM_DEBT'] / bur_merge['AMT_CREDIT_SUM_LIMIT']
bur_merge['BUR_DEBT_LIMIT_RATIO'].replace([np.inf, -np.inf], np.nan, inplace=True)
bur_merge['BUR_DEBT_LIMIT_RATIO'] = bur_merge['BUR_DEBT_LIMIT_RATIO'].fillna(bur_merge['BUR_DEBT_LIMIT_RATIO'].mean())

# proportion of the borrower's income that is dedicated to repaying the loan.
bur_merge['BUR_CREDIT_ANNUITY_RATIO'] = bur_merge['AMT_CREDIT_SUM'] / bur_merge['AMT_ANNUITY']
bur_merge['BUR_CREDIT_ANNUITY_RATIO'].replace([np.inf, -np.inf], np.nan, inplace=True)
bur_merge['BUR_CREDIT_ANNUITY_RATIO'] = bur_merge['BUR_CREDIT_ANNUITY_RATIO'].fillna(bur_merge['BUR_CREDIT_ANNUITY_RATIO'].mean())

# total debt for each loan reported in the bureau data.
bur_merge['BUR_CREDIT_DEBT_RATIO'] = bur_merge['AMT_CREDIT_SUM'] / bur_merge['AMT_CREDIT_SUM_DEBT']
bur_merge['BUR_CREDIT_DEBT_RATIO'].replace([np.inf, -np.inf], np.nan, inplace=True)
bur_merge['BUR_CREDIT_DEBT_RATIO'] = bur_merge['BUR_CREDIT_DEBT_RATIO'].fillna(bur_merge['BUR_CREDIT_DEBT_RATIO'].mean())

# difference between credit record date and update
bur_merge['BUR_DAY_UPDATE_DIFF'] = bur_merge['DAYS_CREDIT'] - bur_merge['DAYS_CREDIT_UPDATE']
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