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**Opportunity Scoring**

A definitive guide to the Machine Learning practices adopted

Problem Statement:

This project aims at developing a novel technique to enable internal stakeholders in resource planning with the help of a recommendation model in order to convert a proposed opportunity into a successful deal.

Data:

The data set is a mix of historical records whose outcome has been decided and some which are in the pipeline of acquisition. There are 281 variables describing each observation. The data set is at a project level.

Variable Reduction Strategy:

1. Missing Data – Data supporting treatment of missing values. Agreed threshold is 45%. Beyond which columns are to be dropped.



1. Multi-Colinearity – Data supporting treatment of co-related numerical variables



1. Single Unique Values – To be removed as they provide no differentiation among the opportunities.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Variable** | **Type** | **Retained** | **Reason** |
| **1** | ID | Char | YES | Unique Identifier |
| **2** | ISDELETED | Char | NO | Single Unique Value |
| **3** | ACCOUNTID | Char | YES | Cast to Category |
| **4** | ACCOUNT\_NAME | Char | YES | Cast to Category |
| **5** | RECORDTYPEID | Char | YES | Cast to Category |
| **6** | RECORDTYPE\_NAME | Char | NO | ID already exists |
| **7** | ISPRIVATE | Char | NO | Single Unique Value |
| **8** | NAME | Char | YES | Identifies project name |
| **9** | DESCRIPTION | Char | YES | Describes the project |
| **10** | STAGENAME | Char | YES | Outcome, Cast to Category |
| **11** | AMOUNT | Num | NO | Colinear |
| **12** | PROBABILITY | Num | NO | Colinear |
| **13** | EXPECTEDREVENUE | Num | YES | Referring to the Factor Analysis |
| **14** | TOTALOPPORTUNITYQUANTITY | Char | NO | Missing Values > Threshold |
| **15** | CLOSEDATE | Char | YES | Time to complete project |
| **16** | TYPE | Char | YES | Cast to Category |
| **17** | NEXTSTEP | Char | NO | Missing Values > Threshold |
| **18** | LEADSOURCE | Char | NO | Missing Values > Threshold |
| **19** | ISCLOSED | Char |  |  |
| **20** | ISWON | Char |  |  |
| **21** | FORECASTCATEGORY | Char |  |  |
| **22** | FORECASTCATEGORYNAME | Char |  |  |
| **23** | CAMPAIGNID | Char | NO | Missing Values > Threshold |
| **24** | HASOPPORTUNITYLINEITEM | Char |  |  |
| **25** | PRICEBOOK2ID | Char | NO | Missing Values > Threshold |
| **26** | OWNERID | Char |  |  |
| **27** | OWNER\_NAME | Char |  |  |
| **28** | CREATEDDATE | Num |  |  |
| **29** | CREATEDBYID | Char |  |  |
| **30** | LASTMODIFIEDDATE | Num |  |  |
| **31** | LASTMODIFIEDBYID | Char |  |  |
| **32** | SYSTEMMODSTAMP | Char |  |  |
| **33** | LASTACTIVITYDATE | Num |  |  |
| **34** | FISCALQUARTER | Num | NO | Colinear |
| **35** | FISCALYEAR | Num | NO | Colinear |
| **36** | FISCAL | Char |  |  |
| **37** | LASTVIEWEDDATE | Char |  |  |
| **38** | LASTREFERENCEDDATE | Char |  |  |
| **39** | CONTRACTID | Char | NO | Missing Values > Threshold |
| **40** | HASOPENACTIVITY | Char |  |  |
| **41** | HASOVERDUETASK | Char |  |  |
| **42** | PROPOSAL\_DUE\_DATE\_TO\_CUSTOMER\_\_C | Num |  |  |
| **43** | GOVWIN\_TRACKING\_NUMBER\_\_C | Num |  |  |
| **44** | DATE\_NOTIFIED\_\_C | Num |  |  |
| **45** | MASTER\_IDIQ\_PROJECT\_\_C | Char |  |  |
| **46** | CUSTOMER\_NAME\_\_C | Char |  |  |
| **47** | CUSTOMER\_NAME\_\_R\_NAME | Char |  |  |
| **48** | PROJECT\_ADD\_ON\_\_C | Char |  |  |
| **49** | BID\_DECISION\_JUSTIFICATION\_\_C | Char |  |  |
| **50** | PROPOSAL\_\_C | Char |  |  |
| **51** | ACTUAL\_B\_P\_AMT\_\_C | Num |  |  |
| **52** | GSA\_SCHEDULE\_\_C | Char |  |  |
| **53** | SUBCONTRACTOR\_AMOUNT\_\_C | Char | NO | Colinear |
| **54** | POWER\_OF\_ONE\_\_C | Char | NO | Single Unique Value |
| **55** | SOLICITATION\_NUMBER\_\_C | Char |  |  |
| **56** | FUNDING\_SOURCE\_NAME\_\_C | Char |  |  |
| **57** | FUNDING\_SOURCE\_NAME\_\_R\_NAME | Char |  |  |
| **58** | PROPOSAL\_CHATTER\_GROUP\_\_C | Char |  |  |
| **59** | ESTIMATED\_AMOUNT\_\_C | Char |  |  |
| **60** | ESTIMATED\_START\_DATE\_\_C | Char |  |  |
| **61** | ESTIMATED\_BASE\_DURATION\_MONTHS\_\_ | Char |  |  |
| **62** | ESTIMATED\_OPTION\_DURATION\_MONTHS | Char |  |  |
| **63** | ESTIMATED\_END\_DATE\_\_C | Char |  |  |
| **64** | COPS\_ID\_\_C | Num | NO | Missing Values > Threshold |
| **65** | CONTRACT\_TYPE\_AWARDED\_\_C | Char |  |  |
| **66** | DEBRIEFING\_RECEIVED\_\_C | Char |  |  |
| **67** | SUB\_STAGE\_\_C | Char |  |  |
| **68** | TOTAL\_AMOUNT\_\_C | Num | NO | Colinear |
| **69** | DEBRIEFING\_SOURCE\_\_C | Char |  |  |
| **70** | CAPTURE\_LEVEL\_\_C | Char |  |  |
| **71** | STRENGTHS\_\_C | Char |  |  |
| **72** | WEAKNESSES\_\_C | Char |  |  |
| **73** | NEXT\_APPROVAL\_STEP\_\_C | Char |  |  |
| **74** | ESTIMATED\_SUBCONTRACTOR\_AMOUNT\_\_ | Num |  |  |
| **75** | HIGHER\_THAN\_COMPETITORS\_\_C | Char |  |  |
| **76** | ESTIMATED\_B\_P\_AMT\_\_C | Num | NO | Colinear |
| **77** | ESTIMATED\_FEE\_\_C | Num | NO | Colinear |
| **78** | NOT\_IN\_COMPETITIVE\_RANGE\_COST\_\_C | Char |  |  |
| **79** | NUMBER\_OF\_COUNTRIES\_INVOLVED\_\_C | Num |  |  |
| **80** | CONTRACT\_TYPE\_PROPOSED\_\_C | Char |  |  |
| **81** | SOLICITATION\_RELEASE\_DATE\_\_C | Num |  |  |
| **82** | SOLICITATION\_RECEIVED\_DATE\_\_C | Char |  |  |
| **83** | SUBMIT\_PROPOSAL\_TO\_\_C | Char |  |  |
| **84** | ESTIMATED\_TOTAL\_AMT\_\_C | Num | NO | Colinear |
| **85** | OVERALL\_AMT\_AWARDED\_\_C | Num | NO | Colinear |
| **86** | NUMBER\_OF\_INCUMBENTS\_\_C | Num | NO | Colinear |
| **87** | EXPEDITING\_JUSTIFICATION\_\_C | Char |  |  |
| **88** | COST\_BREAKDOWN\_COUNT\_\_C | Num | NO | Colinear |
| **89** | PROPOSAL\_DUE\_DATE\_TO\_FUNDING\_SOU | Num |  |  |
| **90** | ESTIMATED\_FEE\_COMMENTS\_\_C | Char |  |  |
| **91** | PROBABILITY\_OF\_WINNING\_\_C | Char |  |  |
| **92** | BUDGET\_\_C | Char |  |  |
| **93** | COST\_REALISM\_\_C | Num |  |  |
| **94** | OVERALL\_AMT\_SUBMITTED\_\_C | Char |  |  |
| **95** | RAQ\_ACCESS\_STORAGE\_OF\_CLASSIFIED | Char |  |  |
| **96** | DEBRIEFING\_NOTES\_\_C | Char |  |  |
| **97** | FACILITIES\_EQUIPMENT\_\_C | Char |  |  |
| **98** | RAQ\_ANIMAL\_SUBJECTS\_\_C | Char |  |  |
| **99** | FUNDING\_SOURCE\_\_C | Char |  |  |
| **100** | RAQ\_BIOSPECIMENS\_OR\_INFECTIOUS\_S | Char |  |  |
| **101** | HUMAN\_SUBJECTS\_PLAN\_\_C | Char |  |  |
| **102** | IMPACT\_OUTCOMES\_\_C | Char |  |  |
| **103** | RAQ\_CLINICAL\_TRIAL\_GCP\_NEW\_DRUG\_ | Char |  |  |
| **104** | INNOVATION\_\_C | Char |  |  |
| **105** | LABOR\_MIX\_\_C | Char |  |  |
| **106** | MANAGEMENT\_\_C | Char |  |  |
| **107** | MGMT\_CHOICE\_OF\_SUBS\_\_C | Char |  |  |
| **108** | NOT\_CROSS\_REFERENCED\_WITH\_TECHNI | Char |  |  |
| **109** | RAQ\_COLLECTING\_NEW\_DATA\_FROM\_HUM | Char |  |  |
| **110** | RAQ\_DIGITAL\_COMPUTER\_SYSTEM\_SIGN | Char |  |  |
| **111** | ORG\_CORP\_EXPERIENCE\_\_C | Char |  |  |
| **112** | OTHER\_COST\_\_C | Char |  |  |
| **113** | OTHER\_NON\_COST\_TECHNICAL\_\_C | Char |  |  |
| **114** | PAST\_PERFORMANCE\_\_C | Char |  |  |
| **115** | QUALITY\_PLAN\_\_C | Char |  |  |
| **116** | RFP\_COMPLIANCE\_\_C | Char |  |  |
| **117** | COSTS\_TOO\_LOW\_\_C | Char |  |  |
| **118** | SIGNIFICANCE\_\_C | Char |  |  |
| **119** | STAFFING\_ORG\_CORP\_EXPERIENCE\_\_C | Char |  |  |
| **120** | RAQ\_ENVIRONMENTAL\_CERTIFICATIONS | Char |  |  |
| **121** | SUSTAINABILITY\_\_C | Char |  |  |
| **122** | TECHNICAL\_APPROACH\_\_C | Char |  |  |
| **123** | UNDERSTANDING\_THE\_PROBLEM\_\_C | Char |  |  |
| **124** | RAQ\_FISMA\_FIPS\_MODERATE\_DATA\_SEC | Char |  |  |
| **125** | PAYMENT\_TERMS\_COMMENTS\_\_C | Char |  |  |
| **126** | PAYMENT\_TERMS\_INSTRUCTIONS\_\_C | Char |  |  |
| **127** | PAYMENT\_TERMS\_\_C | Char |  |  |
| **128** | RAQ\_FOREIGN\_ACCESS\_TO\_EXPORT\_CON | Char |  |  |
| **129** | RAQ\_FOREIGN\_NATIONAL\_RESTRICTION | Char |  |  |
| **130** | RAQ\_GLP\_GMP\_\_C | Char |  |  |
| **131** | COMPETITIVE\_\_C | Char |  |  |
| **132** | CONFIDENTIAL\_ACCOUNT\_\_C | Char |  |  |
| **133** | CONFIDENTIAL\_OPPORTUNITY\_\_C | Char |  |  |
| **134** | CONFLICT\_WITH\_EXISTING\_WORK\_\_C | Char |  |  |
| **135** | CONVERT\_TO\_OPPORTUNITY\_TYPE\_\_C | Char |  |  |
| **136** | COST\_SHARING\_REQUIRED\_\_C | Char |  |  |
| **137** | DEBRIEFING\_REQUESTED\_\_C | Char |  |  |
| **138** | DIFFICULTY\_LEVEL\_\_C | Num |  |  |
| **139** | INCUMBENTS\_\_C | Char |  |  |
| **140** | LEGACY\_COPS\_OWNER\_AD\_ID\_\_C | Char |  |  |
| **141** | LEGACY\_COPS\_OWNER\_NAME\_FIRST\_\_C | Char |  |  |
| **142** | LEGACY\_COPS\_OWNER\_NAME\_LAST\_\_C | Char |  |  |
| **143** | LIQUIDATED\_DAMAGES\_OR\_NEGATIVE\_I | Char |  |  |
| **144** | OCI\_OR\_LOFC\_PROVISION\_IN\_RFP\_\_C | Char |  |  |
| **145** | OPPORTUNITY\_ID\_\_C | Char |  |  |
| **146** | OPPORTUNITY\_OWNER\_\_C | Char |  |  |
| **147** | ORG\_\_C | Char |  |  |
| **148** | PRICE\_TO\_WIN\_AMOUNT\_\_C | Num | NO | Missing Values > Threshold |
| **149** | PRICE\_TO\_WIN\_COMMENTS\_\_C | Char |  |  |
| **150** | PRICE\_TO\_WIN\_DETERMINATION\_\_C | Char |  |  |
| **151** | PROJECT\_DIRECTOR\_\_C | Char |  |  |
| **152** | PROJECT\_NUMBER\_\_C | Char | NO | Missing Values > Threshold |
| **153** | PROPOSAL\_FISCAL\_YEAR\_\_C | Num |  |  |
| **154** | PURCHASE\_ORDER\_\_C | Char | NO | Missing Values > Threshold |
| **155** | SCORE\_SHEET\_RECEIVED\_\_C | Char |  |  |
| **156** | ISO\_COUNTRY\_AMOUNT\_\_C | Num | NO | Missing Values > Threshold |
| **157** | RAQ\_HIPAA\_BUSINESS\_ASSOCIATE\_AGR | Char |  |  |
| **158** | SPECIAL\_CASES\_COMMENTS\_\_C | Char | NO | Missing Values > Threshold |
| **159** | SPECIAL\_CASES\_\_C | Char | NO | Missing Values > Threshold |
| **160** | STRATEGIC\_INITIATIVES\_\_C | Char |  |  |
| **161** | TEMPORARY\_ID\_GENERATOR\_\_C | Char |  |  |
| **162** | ORG\_NAME\_\_C | Char |  |  |
| **163** | REORG\_LVL1\_\_C | Num |  |  |
| **164** | REORG\_LVL1\_NAME\_\_C | Char |  |  |
| **165** | REORG\_LVL2\_\_C | Num |  |  |
| **166** | REORG\_LVL2\_NAME\_\_C | Char |  |  |
| **167** | REORG\_LVL3\_\_C | Num |  |  |
| **168** | REORG\_LVL3\_NAME\_\_C | Char |  |  |
| **169** | REORG\_LVL4\_\_C | Num |  |  |
| **170** | REORG\_LVL4\_NAME\_\_C | Char |  |  |
| **171** | REORG\_LVL5\_\_C | Num |  |  |
| **172** | REORG\_LVL5\_NAME\_\_C | Char |  |  |
| **173** | REORG\_LVL6\_\_C | Num |  |  |
| **174** | REORG\_LVL6\_NAME\_\_C | Char |  |  |
| **175** | REORG\_LVL7\_\_C | Num |  |  |
| **176** | REORG\_LVL7\_NAME\_\_C | Char |  |  |
| **177** | REORG\_LVL8\_\_C | Num |  |  |
| **178** | REORG\_LVL8\_NAME\_\_C | Char |  |  |
| **179** | RAQ\_FULL\_TIME\_EMPLOYEES\_COUNT\_\_C | Num |  |  |
| **180** | RAQ\_LOCAL\_BANK\_ACCOUNT\_REQUIRED\_ | Num |  |  |
| **181** | RAQ\_PROJECT\_OFFICE\_COUNT\_\_C | Num |  |  |
| **182** | RAQ\_TCN\_CCN\_HIRES\_COUNT\_\_C | Num | NO | Colinear |
| **183** | BUSINESS\_UNIT\_\_C | Char |  |  |
| **184** | DIVISION\_\_C | Char |  |  |
| **185** | UNIT\_\_C | Char |  |  |
| **186** | PAYMENT\_TERMS\_ADDITIONAL\_\_C | Char |  |  |
| **187** | NOT\_AWARDED\_TO\_ANY\_FIRM\_\_C | Char |  |  |
| **188** | RAQ\_HAZARDOUS\_CHEMICALS\_\_C | Char |  |  |
| **189** | NO\_BID\_JUSTIFICATION\_\_C | Char |  |  |
| **190** | SUB\_COSTS\_TOO\_HIGH\_\_C | Char |  |  |
| **191** | FEE\_RATE\_TOO\_HIGH\_\_C | Char |  |  |
| **192** | INDIRECT\_COSTS\_TOO\_HIGH\_\_C | Char |  |  |
| **193** | COSTS\_TOO\_HIGH\_\_C | Char |  |  |
| **194** | NOT\_IN\_COMPETITIVE\_RANGE\_TECHNIC | Char |  |  |
| **195** | OVERALL\_CLIENT\_REASON\_\_C | Char |  |  |
| **196** | ADMINISTRATOR\_NOTES\_\_C | Char |  |  |
| **197** | CAPTURE\_NOTES\_\_C | Char |  |  |
| **198** | OPPORTUNITY\_NOTES\_\_C | Char |  |  |
| **199** | RAQ\_HUMAN\_SUBJECTS\_\_C | Char |  |  |
| **200** | RAQ\_LEASE\_OR\_RENOVATE\_SPACE\_\_C | Char |  |  |
| **201** | RAQ\_PII\_OR\_PHI\_INVOLVED\_\_C | Char |  |  |
| **202** | RAQ\_PHYSICAL\_HAZARDS\_\_C | Char |  |  |
| **203** | PROPOSAL\_LEADER\_\_C | Char |  |  |
| **204** | RAQ\_QA\_REQUIREMENTS\_ASSURANCES\_\_ | Char |  |  |
| **205** | RAQ\_SECURITY\_CLEARANCES\_REQUIRED | Char |  |  |
| **206** | RAQ\_SECURITY\_TRAINING\_REQUIRED\_\_ | Char |  |  |
| **207** | RAQ\_TECHNOLOGY\_FOR\_MILITARY\_APPL | Char |  |  |
| **208** | RAQ\_TECHNOLOGY\_TO\_FOREIGN\_PARTY\_ | Char |  |  |
| **209** | RAQ\_PURCHASE\_CONSUME\_INTL\_GOODSS | Char |  |  |
| **210** | RAQ\_PURCHASE\_SHIPMENT\_INT\_L\_GOOD | Char |  |  |
| **211** | REQUEST\_A\_NEW\_CUSTOMER\_\_C | Char |  |  |
| **212** | REQUEST\_A\_NEW\_FUNDING\_SOURCE\_\_C | Char |  |  |
| **213** | AWARDED\_COST\_BREAKDOWN\_COUNT\_\_C | Num | NO | Colinear |
| **214** | SUBMITTED\_COST\_BREAKDOWN\_COUNT\_\_ | Num |  |  |
| **215** | REVISION\_HISTORY\_\_C | Char |  |  |
| **216** | GRANT\_PERCENTILE\_\_C | Char | NO | Missing Values > Threshold |
| **217** | PRE\_AWARD\_DEBRIEFING\_\_C | Char |  |  |
| **218** | CLOSE\_DATE\_AGE\_\_C | Num | NO | Colinear |
| **219** | PROBABILITY\_OF\_BIDDING\_\_C | Char |  |  |
| **220** | QTY\_OF\_CANS\_REQUIRED\_\_C | Char | NO | Missing Values > Threshold |
| **221** | SUBCONTRACTORS\_\_C | Char |  |  |
| **222** | BASE\_AWARD\_FEE\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **223** | BASE\_COST\_BID\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **224** | BASE\_FCCM\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **225** | BASE\_FEE\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **226** | BASE\_NON\_RTI\_COST\_SHARE\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **227** | BASE\_RTI\_COST\_SHARE\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **228** | BASE\_TOTAL\_AMT\_\_C | Char | NO | Missing Values > Threshold |
| **229** | CBS\_AWARDED\_\_C | Num | NO |  |
| **230** | AWARDED\_BASE\_AMOUNT\_\_C | Char | NO | Missing Values > Threshold |
| **231** | AWARDED\_OPTION\_AMOUNT\_\_C | Char | NO | Missing Values > Threshold |
| **232** | BASE\_PERF\_PERIOD\_END\_DATE\_\_C | Char |  |  |
| **233** | BASE\_PERF\_PERIOD\_START\_DATE\_\_C | Char |  |  |
| **234** | OPTION\_PERF\_PERIOD\_END\_DATE\_\_C | Char |  |  |
| **235** | OPTION\_PERF\_PERIOD\_START\_DATE\_\_C | Char |  |  |
| **236** | BUDGET\_FINANCE\_SPECIALIST\_EMAIL\_ | Char |  |  |
| **237** | BUDGET\_FINANCE\_SPECIALIST\_FIRST\_ | Char |  |  |
| **238** | BUDGET\_FINANCE\_SPECIALIST\_\_C | Char |  |  |
| **239** | FISCAL\_YEAR\_\_C | Char | NO | Missing Values > Threshold |
| **240** | CUSTOMER\_NAME\_CUSTOMER\_ID\_\_C | Char |  |  |
| **241** | OPPORTUNITY\_18\_CHARACTER\_ID\_\_C | Char |  |  |
| **242** | TWO\_STEP\_PROCESS\_\_C | Char |  |  |
| **243** | DID\_PRICE\_CHANGE\_\_C | Char |  |  |
| **244** | CONTRACT\_NEGOTIATOR\_EMAIL\_\_C | Char |  |  |
| **245** | CONTRACT\_NEGOTIATOR\_\_C | Char |  |  |
| **246** | TWO\_STEP\_STATUS\_\_C | Char | NO | Missing Values > Threshold |
| **247** | RTI\_FISCAL\_YEAR\_\_C | Num | NO | Colinear |
| **248** | DATE\_APPROVED\_BY\_EICO\_\_C | Char |  |  |
| **249** | EXPORT\_ISSUES\_\_C | Char |  |  |
| **250** | MILITARY\_FUNDED\_USE\_AND\_NON\_HEAL | Char |  |  |
| **251** | OPPORTUNITY\_LINK\_\_C | Char |  |  |
| **252** | NEGOTIATION\_REQUIRED\_\_C | Char | NO | Single Unique Value |
| **253** | GENERAL\_DATA\_PROTECTION\_REGULATI | Char |  |  |
| **254** | DRONES\_SENSORS\_INVOLVED\_\_C | Char |  |  |
| **255** | NDA\_\_C | Char |  |  |
| **256** | OPPORTUNITY\_SIZE\_\_C | Char | NO | Missing Values > Threshold |
| **257** | OTHER\_VALUE\_\_C | Char | NO | Missing Values > Threshold |
| **258** | INPT\_AWARD\_DATE\_\_C | Char | NO | Missing Values > Threshold |
| **259** | INPT\_AWARD\_TYPE\_\_C | Char | NO | Missing Values > Threshold |
| **260** | INPT\_COMPETITION\_TYPE\_\_C | Char | NO | Missing Values > Threshold |
| **261** | INPT\_CONTRACT\_TYPE\_\_C | Char | NO | Missing Values > Threshold |
| **262** | INPT\_CONTRACT\_VEHICLES\_\_C | Char | NO | Missing Values > Threshold |
| **263** | INPT\_DURATION\_\_C | Char | NO | Missing Values > Threshold |
| **264** | INPT\_ESTIMATED\_VALUE\_\_C | Char | NO | Missing Values > Threshold |
| **265** | INPT\_GOVERNMENT\_LEVEL\_1\_\_C | Char | NO | Missing Values > Threshold |
| **266** | INPT\_GOVERNMENT\_LEVEL\_2\_\_C | Char | NO | Missing Values > Threshold |
| **267** | INPT\_GOVERNMENT\_SITE\_\_C | Char | NO | Missing Values > Threshold |
| **268** | INPT\_OPPORTUNITY\_TYPE\_\_C | Char | NO | Missing Values > Threshold |
| **269** | INPT\_OPPORTUNITY\_URL\_\_C | Char | NO | Missing Values > Threshold |
| **270** | INPT\_PRIMARY\_NAICS\_CODE\_\_C | Char | NO | Missing Values > Threshold |
| **271** | INPT\_PRIMARY\_NAICS\_DESCRIPTION\_\_ | Char | NO | Single Unique Value |
| **272** | INPT\_PRIMARY\_REQUIREMENT\_\_C | Char | NO | Missing Values > Threshold |
| **273** | INPT\_RFP\_DATE\_\_C | Char | NO | Missing Values > Threshold |
| **274** | INPT\_RFP\_NUMBER\_\_C | Char | NO | Missing Values > Threshold |
| **275** | INPT\_RESPONSE\_DATE\_\_C | Char | NO | Missing Values > Threshold |
| **276** | INPUT\_LASTMODIFIEDDATE\_\_C | Char | NO | Missing Values > Threshold |
| **277** | INPUT\_OPPORTUNITY\_ID\_\_C | Char | NO | Missing Values > Threshold |
| **278** | INPUT\_STATUS\_\_C | Char | NO | Missing Values > Threshold |
| **279** | INPUT\_UPDATE\_DATE\_\_C | Char | NO | Missing Values > Threshold |
| **280** | REVISION\_DUE\_DATE\_\_C | Char |  |  |
| **281** | INNOVATION\_ADVISOR\_\_C | Char | NO | Missing Values > Threshold |

Algorithms Used:

The following algorithms have been used in preparation of the recommendation model:

|  |  |
| --- | --- |
| **Method** | **Reason** |
| Binary Classification | Prediction of bids Won/Lost |
| Natural Language Processing | Creation of categories based on Description variable |