Supplemental Information – Analytics techniques implemented in the studies included in the scoping review.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Decision Trees | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | ARM | **QUEST** | C5.0 | CART | CHAID | **eCHAID** | RF | SVM | KNN | ANN | BN | **GBM** | **FIS** | MCA | KM | **FCM** | **t-SNE** | EM | **VAR** | **LR** | **FTA** | **RST** | **ARM** | **LDA** | **MAXENT** | OTHER |
| 1 | Ajayi, Oyedele, Akinade, Bilal, Owolabi, Akanbi, & Delgado (2020) |  |  |  | X |  |  | X |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Bevilacqua, Ciarapica, & Giacchetta (2008) |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Bevilacqua, Ciarapica, & Giacchetta (2010) |  | X |  | X | X | X |  |  |  | X |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Bevilacqua & Ciarapica (2018) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Buddhakulsomsiri, Pannakkong, & Nanthavanij (2015) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Dhalmahapatra, Rohan, Harshawardhan, Abhishek, & Maiti (2019) |  |  |  |  |  |  |  |  |  |  |  |  |  | X | X |  | X |  |  |  |  |  |  |  |  |  |
| 7 | Dhalmahapatra, Shingade, & Maiti (2020) |  |  |  |  |  |  |  |  |  |  |  |  |  | X\* |  | X | X |  |  |  |  |  |  |  |  |  |
| 8 | Dhalmahapatra, Singh, & Maiti (2019) |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Ghasemi, Kalatpour, Moghimbeigi, & Mohammadfam (2017) |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 10 | Guo, Zhang, & Lieyun (2019) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Hoenigsberger, Saranti, Angerschmid, Retzlaff, Gollob, Witzmann, Nothdurft, Kieseberg, Holzinger & Stampfer (2022) |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 12 | Khosrowabadi & Ghousi (2019) | X |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Lingard, Hallowell, Salas, & Pirzadeh (2017) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |
|  |  | ARM | **QUEST** | C5.0 | CART | CHAID | **eCHAID** | RF | SVM | KNN | ANN | BN | **GBM** | **FIS** | MCA | KM | **FCM** | **t-SNE** | EM | **VAR** | **LR** | **FTA** | **RST** | **ARM** | **LDA** | **MAXENT** | OTHER |
| 14 | Marques, Jesus, Olea, Viarinhos, & Jacinto (2014) |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Muthusamy, Gunasegaran, Natarajan, & Renganathan (2021) |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Oyedele, Ajayi, Oyedele, Delgado, Akanbi, Akinade, Owolabi, & Bilal (2021) |  |  |  |  |  |  |  | X | X |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Pekel, Aksehir, Meto, Akleylek, & Kihc (2018) |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | Poh, Ubeynarayana, & Goh (2018) |  |  |  | X |  |  | X | X | X |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |
| 19 | Polyvyanyy, Pika, Wynn, ter Hofstede (2019) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Pramanik, Sarkar, Siddharth, Maiti & Mitra (2021) |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 | Sarkar, Baidya, & Maiti (2017) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| 22 | Sarkar, Ejaz, Kumar, & Maiti (2020) |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23 | Sarkar, Ejaz, & Maiti (2018) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| 24 | Sarkar, Ejaz, Promod, & Maiti (2020) |  |  |  |  | X |  |  |  |  |  | X |  |  |  | X |  |  |  |  |  |  |  |  | X |  |  |
| 25 | Sarkar, Gaine, Deshmukh, Khatedi, & Maiti (2020) |  |  |  |  |  |  | X | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | Sarkar, Kumar, Mohanpuria, & Maiti (2017) |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27 | Sarkar, Lodhi, & Maiti (2018) |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 28 | Sarkar, Lohani, & Maiti (2017) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29 | Sarkar, Patel, Madaan, & Maiti (2016) |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 | Sarkar, Pateshwari, & Maiti (2017) |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| 31 | Sarkar, Pramanik, & Maiti (2023) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 32 | Sarkar, Pramanik, Maiti, & Reniers (2020) |  |  |  | X |  |  | X | X | X | X | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 33 | Sarkar, Raj, Vinay, Maiti, & Pratihar (2019) |  |  | X | X |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | ARM | **QUEST** | C5.0 | CART | CHAID | **eCHAID** | RF | SVM | KNN | ANN | BN | **GBM** | **FIS** | MCA | KM | **FCM** | **t-SNE** | EM | **VAR** | **LR** | **FTA** | **RST** | **ARM** | **LDA** | **MAXENT** | OTHER |
| 34 | Sarkar, Vinay, Djeddi, & Maiti (2020) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 | Sarkar, Vinay, & Maiti (2016) |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| 36 | Sarkar, Vinay, Pateshwari, & Maiti (2016) |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 37 | Sarkar, Vinay, Raj, Maiti, & Mitra (2019) |  |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 38 | Shirali, Noroozi, & Malehi (2018) |  |  |  | X | X` |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 39 | Singh, Maiti, & Dhalmahapatra |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  | X |  |  |  |  |  |  |  |  |
| 40 | Tsang, Choy, Koo, Ho, Wu, Lam & Tang (2018) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 41 | Ugur, Arisooy, Ganiz, & Bolac (2021) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 42 | Verma, Chatterjee, Sarkar, & Maiti (2018) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 43 | Verma, Dhalmahapatra, & Maiti (2023) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 44 | Verma, Khan, Maiti, & Krishna (2014) | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 45 | Verma & Maiti (2018) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 46 | Verma, Maiti, & Boustros (2020) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 47 | Verma, Maiti, & Gaikwad (2018) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 48 | Verma, Rajput, & Maiti (2017) |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 49 | Versteeg et al. (2019) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |

\*Modification of MCA called fuzzy discretization technique

ARM = association-rule mining  
QUEST = Quick, unbiased, efficient statistical tree  
C5.0 = type of decision tree  
CART = classification and regression tree  
CHAID = chi-square automatic interaction detector  
eCHAID = exhaustive chi-square automatic interaction detector  
DT = decision tree  
RF = random forest  
SVM = support vector machine  
KNN = K-nearest neighbors  
ANN = artificial neural network  
BN = Bayesian network  
GBM = gradient boosting machine  
FIS = fuzzy inference system  
MCA = multiple correspondence analysis  
KM = K-means clustering  
FCM = fuzzy C-means clustering  
t-SNE = t-distributed stochastic neighbor embedding  
EM = expectation maximization  
VAR = vector autoregression  
LR = logistic regression  
FTA = fault tree analysis  
RST = rough set theory  
ORM = object-rule modeling  
MaxEnt = maximum entropy