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| **ProjectDesignPhase-II**  **TechnologyStack(Architecture&Stack)**   |  |  | | --- | --- | | **Date** | **15October2022** | | **TeamID** | **PNT2022TMID42057** | | **ProjectName** | **CarResaleValuePrediction** | | **MaximumMarks** | **4Marks** |   **Table-1:Components&Technologies:**   |  |  |  |  | | --- | --- | --- | --- | | **S.No** | **Component** | **Description** | **Technology** | | 1. | Userinterface | Throughwebsite,theuserwillpredicttheCarresalevaluebyinteractingwiththepredictionmodel. | HTML,CSS,JavaScript,Bootstrap. | | 2. | Database | Thelocationwheredatacanbe  storedandaccessedwhilethe  applicationisrunning. | Mysql | | 3. | CloudDatabase | Userforinteractioncomponentswhileusingpythonflask. | IBMCloudDB | | 3. | API | Usedtocallthefunctioninordertoaccesstheexecutioninanotherframework | Pythonflask | | 4. | ApplicationLogic | Logicforeachandeveryprocessintheapplication | Python | | 5. | MachineLearningModel | Thismodelisdevelopedtopredictthecarresalevalueusingrandomforestregressoralgorithms | Sklearn,Algorithms-RandomForestRegressor | |

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| |  |  |  |  | | --- | --- | --- | --- | | 6. | Dataprocessing | TheprovideddataistransformedintotheformatsuitablefortheMLmodel. | Pandas,Numpy,Matplotlib,Seaborn |   **Table-2:ApplicationCharacteristics:**   |  |  |  |  | | --- | --- | --- | --- | | **S.No** | **Characteristics** | **Description** | **Technology** | | 1. | Open-SourceFrameworks | BackendFramework,CSSStylingframework,RelationalDatabase | PythonFlask,Mysql,CSS3,IBMCloudDB | | 2. | SecurityImplementations | Emailverificationand  authentication.Authentication  andauthorizationusingJson  objectbycomparingthedata  existsindatabase. | DirectverificationusingBackendFramework | | 3. | ScalableArchitecture | SupportforMultipleSamplepredictionusingExcelFile | Pandas,Numpy | | 4. | Availability | Hostingthewebsiteoncloudhostingplatformswillmakeitavailable. | IBMCloudHosting | | 5. | Performance | Multiplepredictionrequestsshouldbehandledconcurrentlywithoutimpactingpredictionspeedandaccuracy. | LoadBalancers,DistributedServers | |

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| **TechnicalArchitecture:** |
| **API**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | DATAPROCESSING | | | | | |  | Encoding |  | Scaling |  |  |  | | --- | | **APPLICATION-Website** |   **FRONTEND**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | HTML | |  | Website |  | | |  | | CSS | |  | JAVASCRIPT | |  | | |  |  |  | | --- | | Pythonflask |     **BACKEND**   |  |  | | --- | --- | | MODELINGANDPREDICTION   |  | | --- | | Randomforestregressor | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | | Pandas |  |  | | --- | | Numpy |  |  | | --- | | sklearn |   Libraries   |  | | --- | | matplotlib | | |
| |  |  | | --- | --- | | DATASET   |  | | --- | | Car.CSV | |  |  |  |  | | --- | --- | --- | | CLOUDDATABASE | | | |  | IDM-DB |  |  |  |  |  | | --- | --- | --- | | DATABASE | | | |  | MySQL |  | |