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| **SCHOOL OF COMPUTERSCIENCEANDARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENTOFCOMPUTERSCIENCE ENGINEERING** | | | | |
| **Chaithanya**  **2503A53L01**  **24BTCACIYB02**  **LAB:4.3** | | | | **AssignmentType:Lab** | | | **AcademicYear:**2025-2026 | | |
| **CourseCoordinatorName** | | | | VenkataramanaVeeramsetty | | | | | |
| **Instructor(s)Name** | | | | Dr.V.Venkataramana(Co-ordinator) | | | |  | |
| Dr.T.SampathKumar | | | |
| Dr.PramodaPatro | | | |
| Dr.BrijKishorTiwari | | | |
| Dr.J.Ravichander | | | |
| Dr.MohammandAliShaik | | | |
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| Mr.S.NareshKumar | | | |
| Dr.RAJESHVELPULA | | | |
| Mr.KundhanKumar | | | |
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| Mr.M Prakash | | | |
| Mr.B.Raju | | | |
| Intern1(Dharmateja) | | | |
| Intern2(SaiPrasad) | | | |
| Intern3(Sowmya) | | | |
| NS\_2(Mounika) | | | |
| **CourseCode** | | | 24CS002PC215 | **CourseTitle** | | AIAssistedCoding | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | | |
| **Date and Day ofAssignment** | | | Week2 - Wednesday | **Time(s)** | |  | | | |
| **Duration** | | | 2Hours | **Applicableto Batches** | |  | | | |
| **AssignmentNumber:2.3**(Presentassignmentnumber)/**24**(Totalnumberofassignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | | ***ExpectedTime***  ***to***  ***complete*** |
|  | 1 | Lab4:Advanced PromptEngineering– Zero-shot,One-shot,andFew-shotTechniques  **Lab Objectives:**   * ToexploreandapplydifferentlevelsofpromptexamplesinAI-assistedcode generation. | | | | | | | Week2 - Wednesday |

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|  | * Tounderstandhowzero-shot,one-shot,andfew-shotpromptingaffectAIoutput quality. * Toevaluatetheimpact ofcontext richnessandexamplequantityonAI performance. * Tobuildawarenessofpromptstrategyeffectivenessfordifferentproblemtypes.   **LabOutcomes (LOs):**  Aftercompletingthislab, studentswill beableto:   * Usezero-shotpromptingtoinstructAI withminimalcontext. * Useone-shotpromptingwithasingleexampletoguideAIcode generation. * Applyfew-shotpromptingusingmultipleexamplestoimproveAIresponses. * CompareAIoutputsacrossthethreeprompting strategies.   **Prompt:**writeafunctionthatchecks whetheragivenyearisaleapyear.  **TaskDescription#1**   * + Zero-shot:PromptAI towriteafunctionthatcheckswhetheragivenyearisaleap year.     **Explaination:**ThecodeIprovideddefinesafunctioncalledis\_leap\_yearthattakesayear as input and returns True if it's a leap year and False otherwise.  Here'showit works:   * Ayearisaleap yearifit isdivisibleby4. * However,iftheyearisalsodivisibleby100,itisnot aleap year, unless... * .theyearisalsodivisibleby400.Inthat case, it isaleapyear.   Thecodeimplementstheserulesusingconditionalstatements(if,else,and,or)andthemodulo operator (%) to check for divisibility.  Theoutputoftheexecutionshowsthat:  2020isaleapyear(divisibleby4,not by100)   * 1900isnot aleap year(divisibleby100,but not by400) * 2000isaleap year(divisibleby400) * 2023isnotaleap year(notdivisibleby4)   **Conclusion:**  The function correctly identifies leap years based on the standard rules. Prompt:Giveoneinput-outputexampletoguideAI inwritingafunctionthatconverts centimeters to inches.  **ExpectedOutput#1**   * + AI-generatedfunctionwithnoexamples provided |  |

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|  | **Prompt :**writeafunctionthatconvertscentimeterstoinches.  **TaskDescription#2**   * One-shot:Giveoneinput-outputexampletoguideAIinwritingafunctionthat converts centimeters to   inches.    **Explanation:**   * Keyaspectsofthecode * Theconversionfactor * Potentialapplicationsofthe conversion   **Conclusion:**   * Asummaryofthe keyfeaturesofthe conversionfunction * Importantconsiderationswhenperformingunitconversions * Specificdetailsabouttheconversionfactororformula   **ExpectedOutput#2**   * + Functionwithcorrectconversion logic     **Prompt:T**oGenerate afunctionthatformatsfullnamesas“Last,First”.  **TaskDescription#3**   * + Few-shot:Provide2–3examplestogenerateafunctionthatformatsfullnamesas “Last,   First”. |  |

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|  | **Explaination:**   * Thefunctionsplitstheinputfull nameintoseparatepartsbased onspaces. * Itidentifiesthefirstnameasthefirst partandthelast name asthelastpart ofthesplit. * Itformatsandreturnsthename as"Last,First"usingtheidentified * Iftheinputdoesn'tcontainat least twoparts, itreturnstheoriginameunchanged.   **Conclusion:**   * Thefunctionreliablyreformatsnamesfrom “FirstLast”to“Last, First.” * Itusessimplestringsplittingandindexingtoextract name parts. * Ithandlesedgecasesbyreturningtheoriginalinputifformattingisn’t possible. * Thisapproachensuresconsistentandclearname presentationin applications.   **ExpectedOutput#3**   * + Well-structuredfunctionrespectingthe examples     **Prompt :W**riteafunctionthatcountsthenumberofvowelsina string.  **TaskDescription#4**   * + Comparezero-shotandfew-shotpromptsforwritingafunctionthatcountsthenumber of vowels in a   string. |  |

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|  | **Explanation:**   * Howthecodehandlescase sensitivity * Theuseofthe forloop * The in operator * Thevariableinitialization   **Conclusion:**   * Addingsubheadingstothecurrent notebook * OrganizingtheexplanationsI'veprovidedwith subheadings * Something else entirely   **ExpectedOutput#4**   * + Functionaloutputandcomparative reflection     **Prompt:T**ogenerateafunctionthatreadsa.txtfileandreturnsthenumberoflines.  **TaskDescription#5**   * + Usefew-shotpromptingtogenerate afunctionthatreadsa.txtfile andreturnsthe number of   lines.    **Explanation:** |  |

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|  | * Breakingdownthepreviouspointsintomoredetailedsub-points * Creatingahierarchicalstructurefortheinformation * Somethingelserelatedtoorganizinginformationorplanningataskwithsub-steps   **Conclusion:**   * Wecreatedafunctiontocheckif ayearisaleapyear,considering thespecialrulesforyearsdivisible by 100 and 400. * Wedevelopedafunctiontoconvertmeasurementsfromcentimeterstoinchesusingtheconversion factor 0.3937. * Webuilta functiontoreformatfullnamesintoa"Last,First"format,handlingnameswithmultiple parts and single names. * Weimplementedafunctiontocountthenumberoflinesina textfile,includingerrorhandling for missing files.   **ExpectedOutput#5**   * + Workingfile-processingfunctionwithAI-guided logic     **Note:Reportshouldbesubmittedaworddocumentforalltasks inasingledocumentwith prompts, comments & code explanation, and output and if required, screenshots**  **EvaluationCriteria:** | | |  |
| **Criteria** | **MaxMarks** |  |
| ZeroShot(Task #1) | 0.5 |
| OneShot(Task#2) | 0.5 |
| FewShot (Task#3&Task #5) | 1.0 |
| Comparison(Task#4) | 0.5 |
| **Total** | **2.5Marks** |