def create\_chatcompletion\_messages(row):

return [

{

"role": "system",

"content": (

"As a Biological Data Analyst, your primary task is to standardize the 'Age' (or 'Time\_Point') field. "

"You have deep knowledge in developmental biology and time-based experimental designs, "

"especially regarding how to represent sample collection in 'Post-inoculation Day: X' "

"or 'Post-treatment Day: X' formats."

)

},

{

"role": "user",

"content": (

f"Carefully review the info below: {row['Time\_Point']}\n\n"

"Before starting the standardization, check the total number of Original Terms provided. "

"Ensure that the order of terms in your Standardized terms matches the exact order in the input data. "

"Standardize each Original Term sequentially without omission, and verify that the total number "

"of Standardized Terms matches the count in the input.\n\n"

"Detailed Instructions for Improving Revised Terms (Existing Rules 1-26):\n"

"1. Remove Tildes (~):\n"

" - Remove the tilde symbol (~) from all revised terms to ensure consistency.\n"

" - Example:\n"

" - Original Term: ~50 days\n"

" - Revised Term: 50 Days\n\n"

"2. Format ranges with hyphens and no spaces for clarity. Ensure proper capitalization.\n"

" - Examples:\n"

" - Original Term: 10 to 12 weeks\n"

" - Revised Term: 10-12 Weeks\n\n"

"3. Preserve Composite Terms: Keep complex duration terms as they are, e.g., convert "

"'14 hours + 5 days + 3 hours + 1 minute' to '14 Hours + 5 Days + 3 Hours + 1 Minute'. "

"Do not sum them.\n"

" - Example:\n"

" - Original Term: 1 day + 4 days + 2 days\n"

" - Revised Term: 1 Day + 4 Days + 2 Days\n\n"

"4. Standardize Plurals/Singulars for Zero Durations:\n"

" - e.g., '0 days' → '0 Day', '0 weeks' → '0 Week'.\n\n"

"5. Expand Math Expressions:\n"

" - e.g., '12 ± 1 Weeks' → '11-13 Weeks'.\n\n"

"6. Standardize Time Ranges:\n"

" - Use hyphens (no spaces) for clarity, e.g., '5 to 9 days' → '5-9 Days'.\n\n"

"7. Standardize Developmental Stages:\n"

" - Convert, e.g., '2C (Developmental Stage)' → '2-Cell Stage'.\n\n"

"8. Standardize Differentiation Terms:\n"

" - e.g., 'D4\_mES\_differentiation' → '4 Days of Differentiation'.\n\n"

"9. Use the Same Revised Term for Similar Items:\n"

" - e.g., 'adult' or 'adult (P60)' → 'Adult'.\n\n"

"10. Terms Involving 'DIV':\n"

" - Convert 'DIV' to 'Days In Vitro', e.g., '14 DIV' → '1In Vitro 14 Days '.\n\n"

"11. Embryo Age:\n"

" - Use 'Embryonic Day X' and remove redundant descriptors like 'Embryo' or 'E' prefixes.\n"

" - e.g., 'E12.5' → 'Embryonic Day 12.5'.\n\n"

"12. Remove Somite Counts if present, focusing on the embryonic day only, e.g., "

"'E9.5 (20-22 somites)' → 'Embryonic Day 9.5'.\n\n"

"13. Proper Capitalization:\n"

" - '4 weeks' → '4 Weeks', '15 min' → '15 Minutes'.\n\n"

"14. Remove 'Old': e.g., 'Seven-week-old' → '7 Weeks'.\n\n"

"15. Week Ranges with Hyphens:\n"

" - 'Six-eight weeks' → '6-8 Weeks'.\n\n"

"16. 'D' + Number (e.g. D0, D15) → 'Day X':\n"

" - 'D0' → 'Day 0', 'D15' → 'Day 15'.\n\n"

"17. Gestational Day for 'GD':\n"

" - 'GD13.5' → 'Gestational Day:13.5'.\n\n"

"18. Newborn/Postnatal: 'P0' → 'Postnatal Day 0', 'pnd4' → 'Postnatal Day: 4'.\n\n"

"19. Parentheses with a week translation → remove them, e.g. 'P21 (3 weeks)' → 'Postnatal Day 21'.\n\n"

"20. PN or pnd → 'Postnatal Day X'.\n\n"

"21. Present Output as a Two-Column Table:\n"

" - Column 1: Original Term\n"

" - Column 2: Standardized Term\n\n"

"22. Use 'Post' instead of 'After':\n"

" - '3 days after hindlimb ischemia' → 'Post Hindlimb Ischemia Day: 3.'\n\n"

"23. Pregnancy-Related → 'Pregnancy Day X'.\n\n"

"24. Reformat 'post' Terms (Important):\n"

" - e.g., 'post transplantation day 100' → 'Post-transplantation Day: 100' "

"or 'Post-transplantation Day 100' (choose consistent colon usage).\n"

" - If 'Post-' modifies a single noun (e.g., 'Post-Fertilization Development'), keep the hyphen. "

"But if referencing a time (e.g., '24 Hours Post Fertilization'), do not hyphenate 'Post'.\n\n"

"25. Spell Out Durations Consistently:\n"

" - e.g., '6 dpp' → 'Postpartum: Day 6', '8 weeks after remission' → 'Post-remission Week: 8'.\n\n"

"26. Maintain 'Post-XYZ Day: N' or 'Post-XYZ Hour: N' Format:\n"

" - Whenever a term suggests an event-based time, e.g., 'Day 2 after inoculation', "

"standardize to 'Post-inoculation Day: 2'.\n"

" - For post-treatment contexts, e.g. 'Day 10 post treatment', use 'Post-treatment Day: 10'.\n"

" - For a shorter time measure, e.g. '2 hours after surgery', use 'Post-surgery Hour: 2'.\n\n"

"----------------------------\n"

"Additional Clarifications (Rule 27+):\n"

"27. Rounding/Approximations: If a decimal appears (e.g., '128.7916667 Days'), "

"round to the nearest integer if no specific precision is required (→ '129 Days').\n\n"

"28. Pre-/Post- Terms:\n"

" - If a term says '-1 Days from ATT', consider it 'Pre-treatment Day: 1' (assuming 'ATT' = 'treatment').\n"

" - '~1 Week Later' → 'Post Week: 1' or 'Post-study Week: 1' if context is known.\n"

" - 'After' alone → 'Post' (if context is known) or remove if not relevant.\n"

" - 'Before' alone → 'Pre' (if context is known) or remove if not relevant.\n"

" - 'Postoperative' → 'Post-operative'.\n"

" - 'Postreatment' → 'Post-treatment'.\n"

" - 'PostVaccination' → 'Post-vaccination'.\n"

" - 'Pre Treatment' / 'Pre-Treatment' / 'Pretreatment' → 'Pre-treatment'.\n"

" - 'Pre Vaccination' / 'PreVaccination' → 'Pre-vaccination'.\n"

" - 'PreChallenge' → 'Pre-challenge'.\n"

" - 'Pre-Radiation Therapy' → 'Pre-radiation therapy'.\n"

" - 'First Session Post' → 'Post-first session'.\n"

" - 'First Session Pre' → 'Pre-first session'.\n\n"

"29. Remove or Mark Irrelevant Codes:\n"

" - If you see 'DP', 'DN', 'Red', 'Blue', etc. referencing color-coded or gating strategies with no other context, "

"either remove them or set them to 'NA'.\n\n"

"30. Convert t0/t1/t2:\n"

" - 't0' → 'T0'\n"

" - 't1' → 'T1'\n"

" - 't2' → 'T2'\n\n"

"31. 'Three months after meditation' etc.:\n"

" - 'Three months after meditation' → 'Post-meditation Month: 3'.\n"

" - 'Three months post-meditation' → 'Post-meditation Month: 3'.\n\n"

"List the final two-column table without explanations."

)

}

]