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| Category | Description | Metacognitive Knowledge | Metacognitive Experiences | Goals (or Tasks) | Actions (or Strategies) |
| Debugging Help | Requests for help identifying and fixing errors in code. | The student knows they lack the tools or knowledge to debug on their own. | The student experiences frustration or uncertainty when dealing with code errors, perceiving their progress has been halted. | Resolve a specific error in the code to continue development. | Seek external help for debugging and get guidance to fix the errors. |
| Conceptual Questions | Questions about specific concepts or algorithms. | The student recognizes they don’t understand a concept or algorithm and knows they need to improve their theoretical understanding. | The student realizes their lack of conceptual knowledge is hindering their task progress. | Better understand the concept or algorithm to apply it correctly to the problem. | Ask detailed conceptual questions to fill knowledge gaps. |
| Student Correction | The student corrects the response provided by the system (e.g., ChatGPT). | The student has confidence in their own knowledge and realizes the system’s response is incorrect. | The student feels satisfaction or confidence when identifying a mistake and proposing the correct solution. | Ensure the response is correct and consistent with what was previously learned. | Evaluate the received response, identify errors, correct, and adjust the final response. |
| Code Snippet | Request for a specific code snippet. | The student knows they need a specific code snippet to complete a task but may not understand the overall picture. | The student perceives that something is missing to continue their progress but believes obtaining a code snippet will facilitate the task. | Continue progress on the code without dealing with the full complexity of the problem. | Request a specific code snippet to insert into the ongoing project. |
| Complete Solution | Request for a complete solution to an exercise. | The student recognizes they cannot or do not want to solve the problem on their own. | The student may feel frustration or lack of confidence in their abilities, opting to request the full solution. | Complete the exercise efficiently with less personal effort or without going through the full problem-solving process. | Directly request the final answer without attempting to solve the problem independently. |
| Multiple Question | Request to solve multiple exercises at once. | The student perceives that several questions need to be resolved and believes that asking for help with all of them simultaneously will be more efficient. | The student experiences cognitive overload when dealing with multiple tasks simultaneously. | Quickly complete all the requested tasks. | Ask for answers to multiple questions simultaneously to save time and effort. |
| Language Change | Requests to change the language of the response. | The student recognizes that changing the language can improve their understanding of the presented content. | The student perceives they do not fully understand the response and tries to adjust conditions to improve their comprehension. | Understand the received response more clearly to facilitate progress on the task. | Request a change in the response language to improve understanding of the instructions. |
| Uncategorized | Requests that do not fit into any of the categories above. | Depending on the type of request, it may reflect the student’s self-awareness about a knowledge gap or specific strategy. | Depending on the context, the student may be experiencing various difficulties and seeks adjustments or specific solutions. | May involve a varied goal, from completing the task efficiently to solving a technical or conceptual problem. | Actions will depend on the type of request and may vary between seeking quick solutions or more detailed technical support. |