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| CodeWordsGame |
| - \_secret\_word: str  - \_coded\_word: str  - \_original\_coded\_word: str  - \_guesses: int  - \_guesses\_used: int  - \_hints\_used: int  - \_max\_hints: int |
| + \_\_init\_\_()  + \_\_str\_\_() -> str  + \_\_repr\_\_() -> str  + read\_file(filename: str = “codewords.txt”) -> list  + select\_word() -> str  + extra\_shuffle(alphabet: str) -> str  + encode\_word() -> str  + hints() -> bool  + make\_guess() -> bool  + display\_coded\_word() -> str  + is\_won() -> bool  + is\_lost() -> bool |

Test cases

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| Test Case | Input Data | Expected Output |
| Entering more than 1 character | 1. When prompted enter more than 1 character (ex. gh) | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  4. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering an empty value when choosing what to replace | 1. When prompted don’t enter anything and press enter | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  4. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering a non letter (aside from ‘?’) when choosing what to replace | 1. When prompted enter a character that isn’t a letter (ex. /) | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  4. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering an empty value or non letter when choosing what to substitute in | 1. When prompted enter a letter in the coded word (ex. ‘X’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a character that isn’t a letter (ex. /) | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3.Prompt “Enter a letter to substitute ‘X’ with:”  4. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  5. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering a letter to replace but the letter is not in the coded word | 1. When prompted enter a letter not in the coded word (ex. ‘Q’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a letter to substitute with (ex. T) | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Prompt “Enter the letter to substitute ‘Q’ with:”  4. Output message “Letter ‘Q’ not found in the coded word”  5. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  6. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering a ‘?’ it replaces a letter with a correct one | 1. When prompted enter a ‘?’ | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: SURCB YT)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Hint 1/3  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 1/10  Coded Word: AURCB YT  5. Repeat prompt asking for a letter or ‘?’ |
| Entering a ‘?’ replaces all instances of that letter with the correct one | 1. When prompted enter a ‘?’ | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Hint 1/3  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 1/10  Coded Word: ANNANNSL ‘N EOAAF  5. Repeat prompt asking for a letter or ‘?’ |
| Entering a ‘?’ to substitute a letter | 1. When prompted enter a letter in the coded word (ex. ‘X’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a ‘?’ to substitute with | 1. Number of guesses and coded word displayed  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3.Prompt “Enter a letter to substitute ‘X’ with:”  4. Output message “Please make a valid guess of one letter from A-Z or request a hint using ?”  5. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| Entering lowercase letter | 1. When prompted enter a letter in the coded word (ex. ‘x’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a letter to substitute with (ex. ‘a’) | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Prompt “Enter the letter to substitute ‘X’ with”  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 2/10  Coded Word: ANNANNL ‘N EOAAF  5. Repeat prompt asking for a letter or ‘?’ |
| New game starts when wanting to play again | 1. When prompted enter a letter to replace and substitute until you win the game  2. When prompted enter ‘y’ | 1. Number of guesses and coded word displayed  2. Output message “Congratulations! You’ve decoded the word: ASSASSIN’S CREED.  3. CodeWordsGame(ASSASSIN’S CREED, XNNXNNSL’N EOAAF, 3, 3)  4. Output message “Do you want to play again? (y/n):  5. Number of guesses and coded word displayed  6. Prompt “Enter a letter to guess or ‘?’ for a hint: |
| Exits when don’t want to play again | 1. When prompted enter a letter to replace and substitute until you lose the game  2. When prompted enter ‘n’ | 1. Number of guesses and coded word displayed  2. Output message “You’ve lost the game! Better luck next time. The secret word was: ASSASSIN’S CREED.  3. CodeWordsGame(ASSASSIN’S CREED, XNNXNNSL’N EOAAF, 3, 3)  4. Output message “Do you want to play again? (y/n):  5. Thank you for playing! |
| Entering a ‘?’ when all hints have been used up | 1. When prompted enter a ‘?’  2. Repeat step 1 until you are out of hints | 1. Number of guesses and coded word displayed  2. Number of guesses and coded word displayed  3. Output message “You’ve used all your hints!  Unable to provide a hint.” |
| When out of guesses ends the game | 1. When prompted enter a letter to replace (ex. ‘X’ XNNXNNSL ‘N EOAAF)  2. When prompted enter a letter to substitute ‘X’ with (ex. ‘T’)  3. Repeat steps 1 and 2 until you are out of guesses | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Prompt “Enter the letter to substitute ‘X’ with”  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 2/10  Coded Word: TNNTNNSL ‘N EOAAF  5. Repeat prompt asking for a letter or ‘?’ and a substitution until out of guesses  6. Output message “You’ve lost the game! Better luck next time.  The secret word was: ASSASSIN’S CREED  7. CodeWordsGame(ASSASSIN’S CREED, XNNXNNSL’N EOAAF, 3, 0)  8. Prompt “Do you want to play again? (y/n): |
| If a letter is correctly substituted replacing incorrect instances of that letter doesn’t replace the correct one | 1. When prompted enter a letter or ‘?’ (ex. ‘?’ Coded Word: “XNNXNN ‘N EOAAF”)  2. If correct when prompted enter another letter in the word that is the same as the correct ones (ex. ‘A’ Coded Word: “ANNANN ‘N EOAAF” | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Hint 1/3  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 1/10  Coded Word: ANNANNSL ‘N EOAAF  5. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’  6. Prompt “Enter the letter to substitute ‘A’ with”  7. Guesses: 2/10  8. Coded Word: ANNANNSL ‘N ELEEF  9. Repeat prompt asking for a letter or a ‘?’ |
| If the user swaps a letter and it is correct swap all instances of that letter | 1. When prompted enter a letter to replace (ex. ‘N’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a letter to substitute ‘N’ with (ex. ‘S’) | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Prompt “Enter the letter to substitute ‘N’ with”  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 2/10  Coded Word: XSSXSSSL ‘S EOAAF  5. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’ |
| If a letter has been correctly swapped display, it in green for the rest of the game | 1. When prompted enter a letter or ‘?’ (ex. ‘?’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted continue to enter letters to replace (ex. ‘A’ Coded Word: “ANNANN ‘N EOAAF”  3. When prompted enter the letter to substitute ‘A’ with (ex. ‘E’)  3. When prompted enter guesses until there is 1 guess left to win | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3. Hint 1/3  4. Number of guesses and coded word with letter(s) revealed (ex.  Guesses: 1/10  Coded Word: ANNANNSL ‘N EOAAF  5. Re-display guesses, coded word and repeat prompt asking for a letter or ‘?’  6. Prompt “Enter the letter to substitute ‘A’ with”  7. Guesses: 2/10  8. Coded Word: ANNANNSL ‘N EOEEF  9. Repeat prompt asking for a letter or a ‘?’  10. Repeat prompt asking for letter to substitute with  11. Guesses: 8/10  12. Coded Word: ASSASIN’S EREED |
| Can enter a letter with trailing spaces | 1. When prompted enter a letter in the coded word with extra spaces (ex. ‘ X ’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a letter to substitute in with extra spaces (ex. ‘ A ‘) | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3.Prompt “Enter a letter to substitute ‘X’ with:”  4. Guesses: 2/10  5. Coded Word: ANNANNSL ‘N EOEEF  6. Repeat prompt asking for a letter or a ‘?’ |
| Entering an incorrect letter to substitute swaps the letter(s) but does not display in green | 1. When prompted enter a letter in the coded word (ex. ‘X’ Coded Word: “XNNXNN ‘N EOAAF”)  2. When prompted enter a letter to substitute in (ex. ‘T‘) | 1. Number of guesses and coded word displayed (ex. Guesses: 1/10  Coded Word: XNNXNNSL ‘N EOAAF)  2. Prompt “Enter a letter to guess or ‘?’ for a hint:”  3.Prompt “Enter a letter to substitute ‘X’ with:”  4. Guesses: 2/10  5. Coded Word: TNNTNNSL ‘N EOEEF  6. Repeat prompt asking for a letter or a ‘?’ |