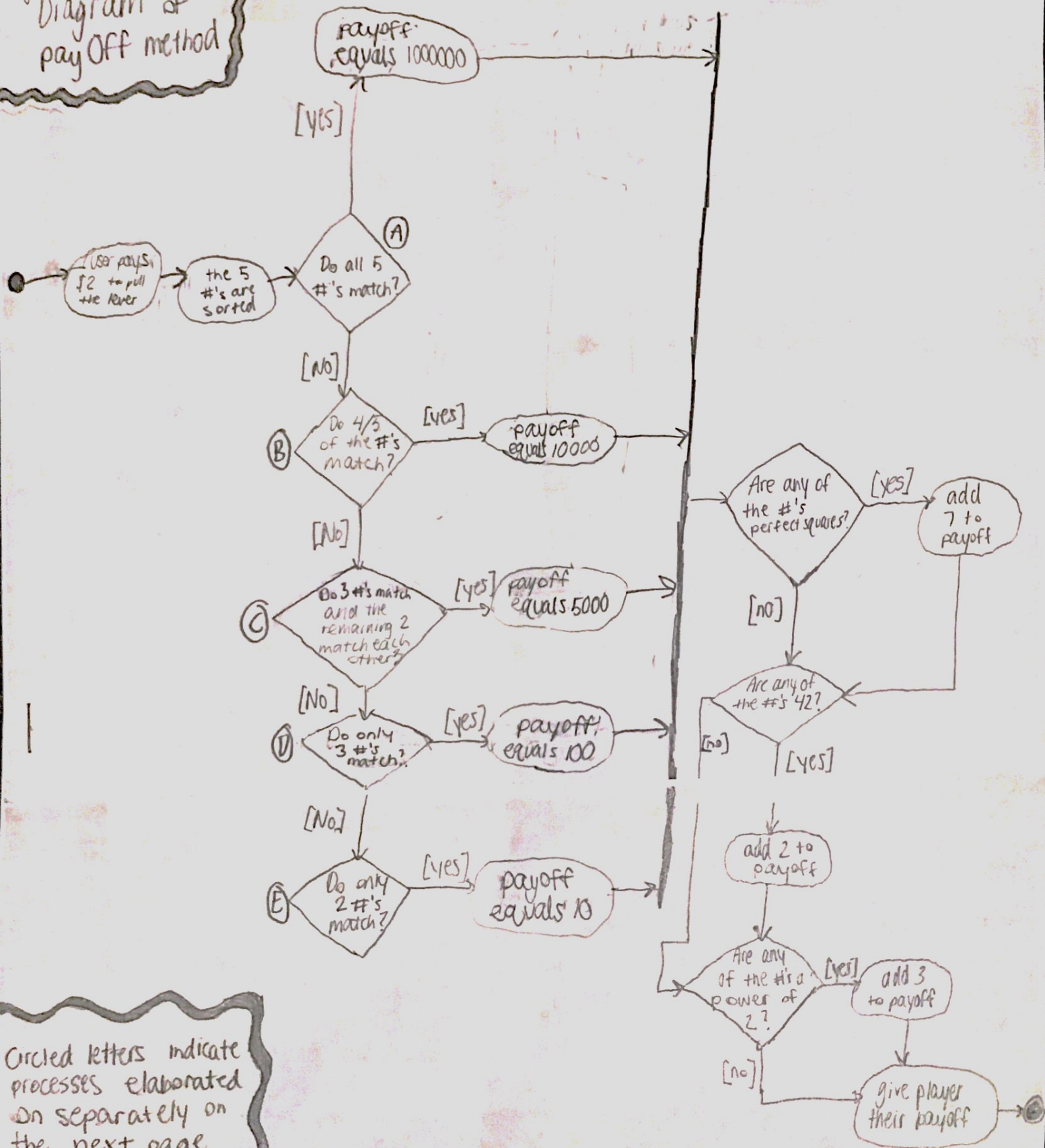


High level Activity Diagram of pay Off method



Ⓐ Do all 5 #'s match?

- use a for loop to iterate through array and return false if $\text{array}[0] \neq \text{array}[i]$. Return true outside of this loop

Ⓑ Do 4 out of 5 of the #'s match?

- Use a ~~while~~ loop to iterate through the array and compare the second through fourth elements to the first element (since the array is sorted), and use an integer variable "count" to ~~keep~~ track the number of matches. The loop should terminate if $\text{array}[0] \neq \text{array}[i]$, or if "count" reaches 4. If the loop terminates and $\text{count} \neq 4$, repeat the process by comparing the third through fifth elements to the second.

EX: $[1, 1, 1, 1, 2]$ would be for the initial process.

$[1, 2, 2, 2, 2]$ would require the second process.

These are the only positions 4-matches could be in because the array is sorted. Return true or false when appropriate.

Ⓒ Do 3 #'s match and the remaining 2 #'s match each other?

- use a similar process ~~to~~ as Ⓑ, but terminate the initial loop if "count" = 3 or still if $\text{array}[0] \neq \text{array}[i]$. If "count" ≤ 1 , return false. If "count" = 2^{*}, do the same process to check if the last 3 elements match by comparing the 4th and 5th elements to the 3rd, and track these matches with an integer variable "secondCount." This second iteration will terminate as soon as ~~the~~ two values do not match, or when the end of the array is reached. Return true if "secondCount" = 3, otherwise return false.

* If "count" was equal to 3 (rather than 2), use these same general processes to check the condition and return true or false when appropriate.

EX: $[2, 2, 3, 3, 3] \rightarrow$ case where "count" = 2 (and condition met)

$[2, 2, 2, 3, 3] \rightarrow$ case where "count" = 3 (and condition met)

① Do only 3 #'s match?

- Use a similar process as ③. This condition will just have more checks since there are more possible successful combinations of positions. ~~the~~ If there are 3 matching numbers, they could be the first, middle, or last three elements of the array. True or false will be returned depending on the result.

⑤ Do only 2 #'s match?

- Use a nested for loop to compare the elements in the array and return true as soon as a match is found. If the loops terminate without a match, then return false.

The 6-8 conditions just require a simple for loop that will iterate through the array to ~~check~~ check for the specified conditions. Each will stop ~~checking~~ checking as soon as the condition is met (if it actually is met) since the payoff amount applies only once per spin.

done for each element i in array until condition is met or all elements are processed.

- 6 → for (int j=1; i * i ≤ array[i]; j++) {
 if (array[i] % j == 0 && array[i] / j == j)
 return true;
 }
 return false;
- 7 → simple equality statement (array[i] == 42)
- 8 → keep dividing the element (n=array[i]) by two ($n = n/2$) while it $\neq 1$. In any iteration, if $n \cdot 2 \neq 0$ and $n \neq 1$, then the element is not a power of 2. If n becomes 1 then it is a power of 2.