# Event Ideation

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## 1 Introduction

Our current batch, and presumably future batches as well, have witnessed a huge mismatch in the demand and supply of resources for better understanding how to apply logic, design algorithms and mathematically prove intuition pumps in competitive settings. Over 30 people in my friend circle in my department alone have begun actively participating in Codeforces at different points of time this year, and some have gone on to perform very well. However, a common difficulty faced by everyone in this niche is the lack of easily understandable resources online, as well as the immense size of oft-recommended resources that serves as a deterrent (the commonly recommended CSES handbook is 296 pages, and CLRS is over 900 pages). At the same time, between the flagship events such as the Bazingas in the 1st semester and the GCs in the 2nd semester, the spacing out of activities by MnP was very erratic and not conductive to regular engagement with the club.

## 2 What can be done

Either alone or in collaboration with WnCC, I feel it would be worth it to provide resources under the following buckets: algorithms (for instance, proving that $\sum_{i=k_1}^{k_2} \binom{n}{i} \pmod p$ can be found in $O(n + (k_2 - k_1 + 1)\log(p))$ time), useful theorems for Game Theory (such as the Sprague-Grundy Theorem) and explanations of common data structures (Segment Trees, Fenwick Trees, and their applications).

This could be done on a weekly basis, with the convenors choosing one particular theme (choosing themes proximate to the audience at the time, such as algorithms that would have helped in a recent competitive programming question, or themes that delve deeper into a concept touched upon in common courses).

## 3 Course of Action

A regular weekly date for the printing of these resources, first as Insta stories/posts and then for permanent reference on the MnP website, will first have to be decided. Since

most contests are on Saturday, ideal days to give time to prepare the slides would be Tuesday or Wednesday.
By Sunday or Monday, the theme will have to be decided, borrowing from resources such as GeeksForGeeks [1], CP-algorithms [2] and e-maxx.ru (recommended by Porygon for Codeforces) [3].
Then, after the convenor(s) understand the concept, example problems will need to be found/devised, easy-to-understand algorithms can optionally be added, and proofs regarding the working, complexity, etc. of these algorithms can be clearly explained on Instagram/the MnP website.

## References


[1] `https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/?ref=outind`.

[2] `https://cp-algorithms.com/index.html`.

[3] `https://e-maxx.ru/algo/`.