
Synthetic Data Generation and Validation of DA Implementation

A Status Report from IIT-M
May 30, 2015 Pre-JoSAA Meeting

Overview

1. Team formed (mid-Jan '15)
2. Mandate: synthetic data generation and validation for Joint Seat Allocation
3. Prelim. data generated (end of Feb '15)
4. Prelim. validation software (end of Mar '15)
5. IITK web interface available for DA (mid-April '15)
6. NIC implementation available (mid-May '15)

Current Status of DA software

- IITK implementation: v1.1
 - NIC team implementation: v1.0

 - The data formats slightly different from each other.
 - Our efforts focussed on testing IITK implementation.
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Our Testing Approach

A two pronged strategy:

1. Small test cases targeted towards testing particular business rules.
 2. Synthetic data sets
 - sizes ranging from 100 → 5L candidates.
 - aimed at testing the interaction of multiple business rules.
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Our Validation Software Checks...

1. Merit violations (tested against closing ranks computed by us).
 2. HS Quota allotment for candidates.
 3. Category wise correct allotment.
 4. DS candidate business rule.
 5. Foreign nationals business rule.
 6. Match closing ranks with given closing ranks.
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Some example targeted test cases

1. Multi-round test case for cat-change.
 2. Multi-round test case for DS change.
 3. Multi-round with no-change.
 4. Multi-round with FR/SL/RJ.
 5. Foreign national with non-IIT choices.
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Our Findings (till date)

- No merit violations, no category violations, no quota violations.
 - Closing rank mismatch (due to prep. candidates).
 - Issue with DS multi-round (fix underway).
 - Crucial assumptions on sanitized input.
 - a. Course limitations addressed during choice filling.
 - b. Foreign nationals choice filling restricted to IIT programs.
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Still to do...

1. Rigorous testing of DA implementation.
(which implementation should we focus?)
 2. Strengthening of the validation program for multi-round.
 3. Testing the complete pipeline (since DA assumes sanitized input).
 4. A co-ordinated effort.
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