# ITERATION REPORT - 2

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| Iteration Number | Activities/Tasks/Work Packages | Iteration Status | Done/Missing |
|---|---|---|---|
| 1st iteration | Machine Learning Algorithm Component | **Done** | |
| 2nd iteration | Evaluator Component | **Passed:** calculation of precision by comparing test and recommendation data | Evaluator for one month dataset: Done |
| 3rd iteration | Distributed Systems Component | **Pending** | - |
| 4th iteration | Testing | **Pending** | - |
| 5th iteration | Web Service Package | **Pending** | - |
| 5th iteration | Bug Fixing | **Pending** | - |
| - | Final Product Package | **Pending** | - |

Offline evaluation is used in our application which is based on separating actual data as training and test dataset. 80% of our data is used as training dataset and remaining 20% is a test dataset. According to our evaluation system, users and their id's are found from test dataset, then we are going to call our recommender system for each user in training data. Each user gets different amount of recommendations according to user's number of distinct listened tracks. %10 of number of user's distinct listened tracks recommendations are recommended by our recommendation system with training dataset. Lastly, calculated recommendations and actual listened tracks are compared as listened or not listened in test dataset. According to results, precision metric is calculated for each user and proportion of all results is found. Before precision is calculated, possible result of a recommendation of an item should be classified and after this classification:

|          | Recommend          | Not Recommend       |
|----------|--------------------|---------------------|
| **Used** | True-Positive (tp) | False-Negative (fn) |
| **Not Used** | False-Positive (fp) | True-Negative (tn) |

Then, precision is calculated as follows:

$$\textbf{Precision} = \frac{\#tp}{\#tp + \#fp}$$

The main task of the next iteration is handling huge data to get more accurate recommendations and to support large number of users.