**Problem Statements for Smart India Hackathon 2017**

1. **Location of Railway Reservation Offices:**

Railways have Reservation Offices at about 3500 locations across the country. The exact location of the Reservation Office is usually not available to the passengers. A software solution to provide location of the Reservation Office alongwith directions will be helpful to general public.

Sample Data Required: Yes

1. **Linkage of local public transport with commuter trains:**

The linkage of public transport buses with the schedule of commuter trains can help in saving time for public as they will not be required to wait for the train at the station. The timing of reaching of public transport bus should be close to the arrival of the train at the station. It will also help in reducing crowd at the station waiting for the train.

Sample Data Required: Yes

1. **Unreserved Ticketing Solution:**

About 90% of rail passengers travel in unreserved segment. While the number of passengers is high, the revenue per ticket is very low. Hence, there is a need for cost effective and efficient system of quick disbursal of ticket which saves time for passengers and prevents leakage of revenue for Railways.

Sample Data Required: Yes

1. **Train requirement forecast.**

Passenger transportation is seasonal and the number of passengers willing to travel varies according to the festivals or holidays, vacations etc. A software solution to predict the demand of passenger traffic can help in meeting the demand by advance planning and also enabling people to get accommodation as per their need.

Sample Data Required: Yes

1. **Condition of Railway Tracks:**

The condition of Railway track is critical for safety of train operations. The condition of tracks needs to be monitored proactively. A software solution which keeps track of the condition of the track and allied infrastructure and generates auto warning messages about the need of urgent maintenance can help in preventing untoward incidents.

Sample Data Required: Yes

1. **Energy Utilization:**

Expenditure on Energy is one of the biggest heads of expenditure for Indian Railways. Energy utilization by various locomotives, buildings, station premises, offices needs to be optimized to prevent wasteful usage. Software solution can be helpful in monitoring the actual usage of energy and it can also compare usage by similar entity across the organization. Cases of excessive usage of energy over and above the requirement can be identified.

Sample Data Required: Yes

1. **Waste Management:**

Huge amount of waste is generated on Railway stations and on trains. Efficient waste management will help in keeping the station premises and trains clean and also enhance passenger comfort. Software solution for efficient waste management can help in timely action.

Sample Data Required: No

1. **Tracking of Individual Package Booked in Parcel & Luggage:**

Parcel and luggage packages are booked for transport from one station to another. A receipt is issued to the consigner on depositing the package at parcel/luggage office. At some stations where computerization of parcel office has been implemented, Barcoded tags are pasted on package. At present, the mechanism of tracking of individual package is not available. Customer wants the information about current location of the package on Indian Railways system.

Sample Data Required: Yes

1. **Maintenance of Coaches & Wagons:**

Coaches and Wagons are maintained as per schedule in nominated depots. The availability of complete profile of each coach and wagon at a centralized data base and its analysis can help in generating useful information about the causes of breakdowns, likely failures in future in specific coach or wagons and thereby enabling planning for maintenance.

Sample Data Required: Yes

1. **Signaling:**

Indian Railways have multiple types of signaling system. Failures of signals severely affect the movement of traffic. Predictive analysis which can help identify the likely failure cases in near future can help in timely attention thereby preventing failures.

Sample Data Required: Yes

1. **Telecom Connectivity:**

Indian Railways have telecom connectivity through RailTel OFC network, BSNL etc., for reserved ticketing counters, Unreserved ticketing counters, freight operations information system terminals etc., across the country. The uptime of telecom channels is monitored through network management system. A software solution to monitor the telecom channels, analyze the status or performance of various channels and prevent failures can help in improving performance.

Sample Data Required: Yes

1. **Passenger Security:**

Security of passengers and their belongings is of paramount importance for Indian Railways. In case of any untoward incident or incident of crime against passengers and their belongings matter can be reported to Government Railway Police at Railway stations and on trains and also through given security helpline telephone number 182. A software solution need to be provided for online registration of FIR over entire network of Indian Railway for speedy initiation of action by GRP.

Sample Data Required: Yes

1. **Preventing untoward incident:**

Software solution for preventing untoward incident based on analysis of past data, identifying possible vulnerable areas and action to improve security at those places can help in improving security.

Sample Data Required: Yes

1. **Security App for Women:**

A single security App for women security over entire network of Indian Railways can help in improving safety and security of women.

Sample Data Required: No

1. **Ticket Checking System:**

At present, ticket checking is done on trains, at station exit and also at platforms. Ticket checking is manual process and due to shortage of ticket checking staff, only a small number of passengers are checked. There is need for solution which can ensure 100% ticket checking. The solution should be such that passenger need not have to wait for getting his ticket checked.

Sample Data Required: Yes

1. **Accidents at Unmanned level Crossings:**

At several places, railway tracks are at the level of road. Due to resource constraints, no railway staff is posted at many such crossings of railway track and road. Accidents are often reported due to negligence by the road users. A solution to this problem needs to be developed which is effective and cost efficient.

Sample Data Required: No

1. **Usage of Human Resource:**

Indian Railways has about 13 lakhs employees. A large number of employees are underutilized or are used in duties other than their official task. A Geo fencing based software solution to track each employee and to monitor the work done by each employee can help in better utilization of resources.

Sample Data Required: No

1. **De duplication of price list numbers:**

All regularly purchased items on Indian Railways are allotted a unique code called Price List Number (PLN). In the database there are lakhs of records. In some cases, same PL Numbers has been allotted to multiple items and in other cases multiple PL numbers have been allotted to same item. An application needs to be developed to suggest duplicate PL Numbers by finding similarity in the PL description fields of different PL Numbers so as to eliminate the duplicity in data.

Sample Data Required: Yes

1. **Management of GUI based multilevel numbered list:**

In e-procurement system of Railways, several forms require creation of numbered list (like insertion of items in a tender document). In such cases, multi level numbered lists are allowed. In case of manual numbering, the user is required to manually edit the numbering of all subsequent items in case of any editing. To improve user experience, it is intended to use auto numbering with features like auto updating of all serial numbers in case of insertion or deletion of row, user to be able to edit any or all serial numbers.

Sample Data Required: Yes

1. **Condition of Rail Bridges:**

Some of the Rail Bridges on Indian Railway network are very old. Monitoring the condition of rail bridges is extremely important for safe train operations. A software solution to monitor the condition of bridges can help in timely maintenance.

Sample Data Required: Yes

1. **Management of Railway Rest Houses & Holiday Homes:**

At present, the allocation of accommodation in Railway Rest Houses, Holidays Homes is done manually. The request is to be given in writing and there is no mechanism to advise the applicant about status of booking of rooms. This causes uncertainty and difficulty in planning one’s programme. An online system of submitting request and allocation of rooms is required.

Sample Data Required: Yes

1. **Involving Passengers in Upkeep of Railway Stations:**

Railway stations are used by two categories of passengers – daily commuters and occasional travelers. Involving passengers in station upkeep through education and active participation can help in finding a lasting solution. Software to keep people engaged about the need to maintain the railway stations is required.

Sample Data Required: No

1. **Disaster Preparedness:**

Rail accidents cause loss of life, property and hardships to passengers and railways. Participation of all the stake holders viz., passengers, railways, local administration and citizens in nearby areas can help in speedy restoration. A software solution to seek support and get required help in time is required.

Sample Data Required: No

1. **E-ticketing:**

Issue of bypassing checks related to IP and multiple IDs creation are reported on e-ticketing website irctc.co.in. A solution to the issue by linking of IP address, Machine ID, User ID etc., needs to be developed to ensure implementation of checks regarding maximum number of tickets being booked by an individual.

Sample Data Required: No

1. **Unification of Railway Apps:**

Indian Railways have separate mobile Apps for train enquiry, e-ticketing, parcel, unreserved ticketing etc. Unification of all the Apps on single platform will increase convenience for the users as well as improve popularity of the App.

Sample Data Required: No

1. **Virtual Tour of Railway Station:**

A host of facilities are available at major railway stations. However, passengers are often unaware of the location of such facilities. An application to provide virtual tour of Railway Station can be helpful in facilitating the information flow to the passengers.

Sample Data Required: No

1. **Integration of multiple Railway websites:**

Indian Railways have various websites viz, indianrailways.gov.in, indianrail.gov.in, irctc.co.in, enquiry.indianrail.gov.in. The traffic on websites gets divided and user has to access different website for different services. Integration of all websites into a single website will help in user convenience and greater popularity.

Sample Data Required: Yes

1. **Analysis of train wise earnings:**

A dashboard showing trends in earnings of a train needs to be developed. It will help in planning additional trains, change in composition in a train and monitoring the performance of staff deployed in the train.

Sample Data Required: Yes

1. **Website security:**

Data from enquiry websites is being used by several other websites without proper authorization from railways. Unauthorized usage of data puts additional loads on the websites and slows down its performance. A solution to prevent unauthorized data scrapping is required.

Sample Data Required: Yes

1. **Energy Efficiency:**

More than 2 crore passengers and 13 lakhs employees use railway infrastructure and offices. Promoting behavioral change among passengers and employees to use energy efficient habits can help in saving energy. A software solution to keep reminding employees and passengers about efficient methods of using electric equipments is required.

Sample Data Required: Yes

1. **Mapping Beneficiaries of Health Services**

Identification of Beneficiaries of Railway Health Services at the point of delivery of service can help in preventing pilferage of resources and also help in creating health profile of the patients. It can help in planning resources and man power required. Linkage of Aadhar can also be considered.

Sample Data Required: Yes