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Department of Defence Production

The Department of Defence Production (DDP) was set up with the objective of developing a comprehensive production infrastructure to produce the weapons, systems, platforms, equipment required for defence. With the objective of achieving self-reliance in defence production, the Ordnance Factories and DPSUs have been continuously modernizing and upgrading their capabilities and widening their product range. They have 30 problem statements for which they look forward to innovative solutions in the Smart India Hackathon 2017.

[To format document as per Formatting Standard adopted by DoS](#)

#DDP29

Total Submissions : 3



Design a database interface where formatting information can be fed and output customized accordingly in an automated manner.

Make necessary assumptions, any open source word processing tool may be used.

Sample Data Required: No

PARTICIPATE



To transmit document across Air Gap between Internet and Intranet

#DDP28

Total Submissions : 4

One major problem faced in e-communication is that each agency has its own isolated secure intranet but not connected to each other. Hence majority of communication is through hard copies or tedious process of downloading document on one internet/ intranet. Printing/ scanning and uploading in another intranet as most intranet require air gap to be maintained between Internet and Intranet. Organisation spends large amount of time & effort to convert hard copies to e-documents or vice versa and process them. We need an e-solution that will allow e-doc (Text/ Word/ PDF) from one intranet to another intranet or internet and vice-versa without violating the air-gap security breach or virus/ malware infection. This would reduce our processing time to produce a new standardization document significantly. This solution when applied to various defence networks would also provide major relief to communicate with ease across air-gap.

Additional Inputs:

Agencies maintain different e-mail id for correspondence on intranet and internet.

Process needs to automated to detect Text/ Word/ PDF attachment in incoming internet mail, download, use sensors to securely transfer across air-gap, convert back to Text/ Word/ PDF attach to intranet mail or folder.

Sample data required: No



#DDP27

Total Submissions : 7

MD's message online to the Company's Workforce. Without movement of the workforce in a Auditorium, Workforce can hear what is MD's message to the workforce and they should be able to ask their questions/ queries too from their work location.

Suggest a solution to be implemented over company's intranet.

How can this be implemented.

Sample Data Required: No

PARTICIPATE



Group Messaging Solution between Senior Exec's & MOD

#DDP26

Total Submissions : 4

Evaluation of a group messaging solution between senior executives of DPSU's and MOD's workforce. The solution should be secure and only encrypted messages should be allowed, with no uploading of any file. The solution should support Group conference, Sharing of Desktop, Meeting Features.

Design a client server model with necessary secrecy/ security over mobile/ internet environment.

Sample Data Required: No

PARTICIPATE





Having a Yearly Negotiated Price List for equipments/ products/ services/ raw materials/ tools at DPSU Level.

To reduce the procurement time. With the requirement of IT products/ equipments/ services/ raw materials/ tools more or less on similar lines, yearly Procurement council of all DPSU's can discuss and negotiate prices for a list of items, which can be released to all DPSU's. This can greatly reduce the procurement time and quicken the purchase cycle. Some mechanism needs to be developed to enable this idea.

Suggest a design of a web based solution with associated distributed database, modules and interfaces.

Sample Data Required: No

PARTICIPATE



[Data Consolidation for information kept at 4 different servers and in 4 different formats In shipbuilding Industry](#)

#DDP24

Total Submissions : 0

1.1st Stage – Ship Design done using CAD software . The Data is stored in a OS level file systems.

2.2nd Stage – Product Data Management where Project & Work Completion schedules for every part designed in CAD is maintained along with quantity required in RDBMS like (Oracle/ SQL Server etc.) Predominantly it is OLTP based RDBMS.

3.3rd Stage – ERP itself where Project Data is linked with Inventory, Financials & HR. With exponential growth in Data Generated in ERP, generally enterprises are going for a Column based data storage.

4.4th Stage – Business Intelligence software where all the Data generated in past 3 stages should be consolidated and a 3 dimensional view of the Ship under construction should be projected. Generally this is stored in OLAP based RDBMS.



Asymmetric Key Based Encryption and Authentication for File Sharing

#DDP23

Total Submissions : 19

HAL executives need to send many documents over the internal network which sometimes contain sensitive information. These documents will generally be password protected and password will be communicated through separate means. This is cumbersome and some time lead to guessing the password and opening the file by unintended person. A solution to be provided for encryption of a file and authentication of the user using asymmetric key algorithm (Public & Private key). The system should not to use any dongle/ Hardware device like digital signature, rather it is only a software driven digital signature system, which will encrypt the file and also authenticate the user. Keys can be generated through the system and distributed to users by the administrator. File encryption and authentication can be done using this small portal/ system on website.

Suggest an open source based solution.

Sample Data Required: No

PARTICIPATE



Collection and consolidation of Data through standalone files

#DDP22

Total Submissions : 2

HAL has to frequently collect information pertaining to different departments in soft copy form. This data has to be consolidated at Division, Complex and Corporate Levels and further analytics will be done on top of this data. Right now, the collation of Data happens by sending a Template in Excel/ Word to concerned personnel through HAL's internal mailing system. The filled in Templates thus obtained are consolidated using Excel/



such as numeric, text and Date can be defined by the program owner and Data to be filled has to match these Data types. Later after collecting the data in offline mode, Data to be migrated to a predefined table of Oracle Database. This will help in collecting data for various requirements and can be used in Dash Board etc.

Necessary assumption be made.

Sample Data Required: No

PARTICIPATE



e-Log Card

#DDP21

Total Submissions : 6

HAL is servicing many aircrafts and Helicopters. The aircrafts and helicopters dispatched by HAL contains a Log-card containing the Data on all LRUs (line Replaceable Units) fitted on the Aircraft. This Data includes information such as Serial No., Flying Hours, Next Service Due, etc. This information will be changing once the customer performs some operations/ maintenance activities at the bases. When the aircraft comes again for servicing at HAL, the updated log card comes in hardcopy and manually punched for various analysis. The requirement is to automate the process of Log card maintenance. Devise a solution with offline data storing mechanism that can be executed in a standalone PC. The solution should enable capture of information relating to log cards and save it in the PC. A interface should also be provided for downloading the data in different formats such as CSV, XML etc for uploading to other Transactional Systems such as ERP.

Assume up to 100 parameters for 50 types of platforms.

Sample Data Required: No

PARTICIPATE





HAL is using many web based applications which requires capturing of credentials of the user such a employee code, designation, department etc. Currently the credentials are captured using a username and password for most of the applications. Although this authentication mechanism is sufficient for most of the requirements, users some times share their passwords which defeats the purpose in certain applications where it has to be ensured that the user being logged in is physically the same. The Biometric authentication solution should have a generic code which can be plugged into any web based application and perform authentication by Comparing a Users finger print (in binary/ hex etc) with the value stored in the Database. There should be provision for configuring tolerance (certain percentage of relaxation) in matching the finger prints with the Database. Code preferably written in ASP.Net environment.

Sample Data Required: No

PARTICIPATE



[Secure Correspondence amongst stakeholders over internet](#)

#DDP19

Total Submissions : 4

Organizations makes lot of correspondence with Stakeholders. Many a times there is a communication delay since the correspondence happens through hardcopy and reply also goes in hardcopy. The correspondence may also contain some sensitive information and should be protected from any unauthorized access. Commercial grade security is provided by techniques such as SSL VPN. A secure means of correspondence over the internet having military grade unique security which can work in asynchronous/ synchronous/ media transfer needs to be established between HAL and Stakeholders which will make the communication faster and more efficient. Provision for scanning and uploading documents and mailing to concerned personnel should also be provided. The network should also enable KM requirement of stakeholders.

Sample Data Required: No



#DDP18

Total Submissions : 4

HAL and Customers are maintaining separate RDBMS for various types of orders placed on HAL. There is a requirement of exchanging data between the two Databases. HAL & Customer network are Separate and the data in the form of CSV/ XML file will be uploaded on a separate server in a common template. The common template needs to be updated through CSV/ XML. A sample common Template for Customer Order is as follows:-

Order No	Order Date	Part No.	Quantity	Cleared Date	Receipt Date
(a)	(b)	(c)	(d)	(e)	(f)

Column (e) will be updated by HAL and column (f) by Customer. The data in the CSV/ XML file should be secure and cannot be modified in transit. Device a solution for securely achieving the Data exchange and update the common Template on a daily basis.

Sample Data Required: No

PARTICIPATE



[Image Based Object Recognition](#)

#DDP17

Total Submissions : 41



with pre-stored object signature. Accordingly, the object type needs to be recognized in terms of name of the objects(e.g. Car, Bus etc), object type (e.g. Car type: Swift Desire etc).

Input: Image captured from the airborne platform, Predefined set of sample object images.

Output: Recognized object with the relevant information display like object name, object type etc.

Environment: C/C++

Sample Data Required: No

PARTICIPATE



Video Stabilization for Unmanned Aerial Vehicles

#DDP16

Total Submissions : 14

Unmanned Aerial Vehicles carry color and infrared cameras to capture outside scenes in real-time. In military applications, the quality of imagery that these vehicles relay to the operators is directly related to how much of information they can extract from the frames being captured in real-time. Generally the captured video looks jittery and not appealing due to vibrations of the platform. This issue of oscillations and low frequency vibrations has to be addressed to improve visual quality without compromising computational efficiency.

Input: Jittery videos being captured by UAV in real-time

Output: Stabilized videos

Environment: C/C++

Sample Data Required: No



#DDP15

Total Submissions : 26

A mobile application to detect measure of alertness of user. Also provide tools and utilities to improve and maintain the alertness of user. In case of serious fatigue and sleeplessness generate alert by sending message to specific number.

Question: Design and development of mobile application to measure level of alertness?

Inputs: Mobile Sensor data or user questionnaires.

Output: Shows the alertness level and options to send it to someone. Also it should provide ways to improve the alertness of the user.

Sample Data Required: No

PARTICIPATE



[Secure Copier \(Secure Pen drive Copier\)](#)

#DDP14

Total Submissions : 33

Develop a secure software/ tool which will only should Read/ Write from/ into the Pen Drives.

When some files or data is reading/ writing from/ into the Pen Drive it should give a pop up saying the following files are copying/ writing from/ into the Pen Drive, you want to continue or skip/ cancel without user intervention no data should be copied.

If the Pen Drive is being used on any other unauthorized system, then the Pen Drive should get formatted automatically.



Remote Desktop Monitoring

#DDP13

Total Submissions : 11

How to remotely monitor around 6 systems simultaneously. The intent is to split the screen into 1/6th and monitor all systems at the same time. Services are available to remotely monitor multiple desktops. It is overlapping. Our aim is to fixed location for each monitor whenever it is opened. These remote desktops should not be overlapped with each other. User has to view simultaneously all the monitors.

What to do:

Develop the software to split the monitor based on number of remote desktops and fix location for each desktop.

Sample Data Required: No

PARTICIPATE



Medical record tracking system

#DDP12

Total Submissions : 23

Development of online Medical solutions (desktop application and mobile application) to view/ request for medical service to self/ family of the service personnel.

The solution has to enable them to utilize the services available in their region of stay/ postings/ field.

It should support maintenance of comprehensive data records lifelong of the personnel in electronic formats.



Assume medical record structure.

Sample Data Required: No

PARTICIPATE



Govt to host a ministry level, automated tender information system

#DDP11

Total Submissions : 8

Development of Online Application to obtain real time info/track the status of any Government department related tenders by the vendors.

The app can also have provision for vendors to provide feedback, raise their concerns, this helps to improve transparency.

This can be an umbrella solution which can combine all info currently available in different Government department websites.

Assume structures and create an application which meets above requisite.

Sample Data Required: No

PARTICIPATE



Development of Plug-in to the IDE to add a function as reusable code and retrieve from the reusable list of functions



and incorporate code from within the IDE would improve the productivity of the developer.

Sample Data Required: No

PARTICIPATE



Development of Plug-in to find out programmers coding efficiency (Based on the compiler output)

Total Submissions : 8

#DDP9

Identifying specific areas for improvement of software developers is very essential in providing focused training and thereby improve productivity and product quality. This is usually done based on the feedback from their reporting officers. However, detailed inputs in this regard can be obtained by capturing the way the developer codes. Most developers use eclipse based IDE for development and invocation of static analysis tools to verify compliance to various coding standards (Quality, Security) are integrated into the IDE. A plug-in or a new version of IDE can be developed to capture the type of errors (e.g. syntax errors) and noncompliance with respect to coding standards. From the number and type of errors it is possible to assess the training needs of the developer.

After the training the same can be used to measure training effectiveness.

Sample Data Required: No

PARTICIPATE



Provisioning of Group members location & Chatting



elite force who are infiltrating a terrorist or naxalite location. So a mobile based application can be developed that will help people to locate other members of group in real time using GPS technology. The applications can provide details about the location of all members and a platform to communicate with them.

Provisioning a text based chat facility among the users, select a user single user group on the map and send camera pictures/ video.

Sample Data Required: No

PARTICIPATE



Low cost asset tracking system

#DDP7

Total Submissions : 21

Presently office assets and equipment are numbered manually and their tracking and annual audit is done manually.

A suitable system with barcodes and barcode readers with backend system for tracking, auditing and ageing analysis will help a lot in asset management (alternately electronic tags can also be used instead of barcodes).

Suggest a scalable solution for tracking 500 IT and non-IT office assets distributed over 5 locations.

Sample Data Required: No

PARTICIPATE



File server solution to bring accountability of official electronic files copied on portable media



A suitable file server solution with built in checks and audit trails will help a lot in bringing accountability on employees and service providers.

The system should keep track who copied, what is copied with audit trails which are temper proof. Network has Windows and Linux servers and client machines have various flavors of windows.

Sample Data Required: No

PARTICIPATE



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