Success rate of Arrange marriage in India Analysis with Graphs/Figures and Reports

Lovely Professional University

Requirements Specification

Python Version 3.8

Jupyter Notebook

NumPy Library

Pandas Library

Matplotlib Library

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1. Executive Summary

1.1 Project Overview

“Success rate of Arrange marriage in India Analysis with Graphs/Figures and Reports” is a Project created using Python Language with the help of various advanced libraries such as: - NumPy, matplotlib, pandas, etc. This project is a simple and a small project which will help the people to see the analysis of success rate of arrange marriages and it has administrative login page to stay connected and will help them to have a medium to communicate easily and in a faster manner. In this system, the administrative will be able to analyze and generate information related to the success rate of arrange marriage.

1.2 Purpose and Scope of this Specification

Success rate of Arrange marriage in India Analysis System will help in keeping the track record of the successful marriages.
The goals and objectives of creating such a system is to: -

- Calculate the population of success of arrange marriages
- Find out the success rate composition
- Find the geographical distributions

Population Analysis also helps us to determine: -

- The demand for various services
- Find the locations for various new facilities

This data can also be used for the demographic indicators to measure the achievement of the objectives. This could include: -

- Infant mortality rates
- Age specific fertility rates
- Age specific death rates
- Morbidity statistics

2. Product/Service Description

2.1 User Characteristics

This application can be used by the various users, such as: -

- Bachelors
- Couples
- Admin

2.2 Assumptions

Following are the hardware and software requirements that are required for the system to work in a good and appropriate manner.

SOFTWARE REQUIREMENTS:

Name of component	Specification
Operating System	Windows
Language	Python
Database	SQL
Browser	Any of Mozilla, Opera, Chrome, etc.
Web Server	Python
Software Development Kit	Python
Scripting Language Enable	Python
Database JDBC Driver	DB Browser

HARDWARE REQUIREMENTS:

Name of component	Specification
Processor	Intel Core
RAM	2GB
Hard disk	500GB
Monitor	On any screen
Keyboard	No specific requirement

2.3 Constraints

There will be no constraints in the working of the GUI Application if the above-mentioned requirements are met by the user of the application. All these requirements are the basic ones for the user to handle the proper working and functioning of the system.

3. Requirements

Following are the hardware and software requirements that are required for the system to work in a good and appropriate manner.

3.1 SOFTWARE REQUIREMENTS:

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Language	Python Runtime Environment
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Scripting Language Enable	Python
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3.3 SECURITY TESTING OF THE PROJECT:

Testing is vital for the success of any software. No system design is ever perfect. Testing is also carried in two phases. First phase is during the software engineering that is during the module creation. Second phase is after the completion of software. This is system testing which verifies that the whole set of programs hanged together.

White Box Testing:

In this technique, the close examination of the logical parts through the software is tested by cases that exercise species sets of conditions or loops. All logical parts of the software checked once. Errors that can be corrected using this technique are typographical errors, logical expressions which should be executed once may be getting executed more than once and error resulting by using wrong controls and loops. When the box testing tests all the independent part within a module a logical decisions on their true and the false side are exercised, all loops and bounds within their operational bounds were exercised and internal data structure to ensure their validity were exercised once.

Black Box Testing:

This method enables the software engineer to device sets of input techniques that fully exercise all functional requirements for a program. Black box testing tests the input, the output and the external data. It checks whether the input data is correct and whether we are getting the desired output.

Alpha Testing:

Acceptance testing is also sometimes called alpha testing. Be spoke systems are developed for a single customer. The alpha testing proceeds until the system developer and the customer agree that the provided system is an acceptable implementation of the system requirements.

Beta Testing:

On the other hand, when a system is to be marked as a software product, another process called beta testing is often conducted. During beta testing, a system is delivered

among several potential users who agree to use it. The customers then report problems to the developers. This provides the product for real use and detects errors which may not have been anticipated by the system developers.

Unit Testing:

Each module is considered independently. It focuses on each unit of software as implemented in the source code. It is white box testing.

Integration Testing:

Integration testing aims at constructing the program structure while at the same constructing tests to uncover errors associated with interfacing the modules. Modules are integrated by using the top-down approach.

Validation Testing:

Validation testing was performed to ensure that all the functional and performance requirements are met.

System Testing:

It is executing programs to check logical changes made in it with intention of finding errors. A system is tested for online response, volume of transaction, recovery from failure etc. System testing is done to ensure that the system satisfies all the user requirements.

3.3.1 IMPLEMENTATION AND SOFTWARE SPECIFICATION TESTING:

Detailed Design of Implementation

This phase of the systems development life cycle refines hardware and software specifications, establishes programming plans, trains users and implements extensive testing procedures, to evaluate design and operating specifications and/or provide the basis for further modification.

Technical Design

This activity builds upon specifications produced during new system design, adding detailed technical specifications and documentation.

Test Specifications and Planning

This activity prepares detailed test specifications for individual modules and programs, job streams, subsystems, and for the system as a whole.

Programming and Testing

This activity encompasses actual development, writing, and testing of program units or modules.

User Training

This activity encompasses writing user procedure manuals, preparation of user training materials, conducting training programs, and testing procedures.

Acceptance Test

A final procedural review to demonstrate a system and secure user approval before a system becomes operational.

Installation Phase

In this phase the new computerized system is installed, the conversion to new procedures is fully implemented, and the potential of the new system is explored.

System Installation

The process of starting the actual use of a system and training user personnel in its operation.

Review Phase

This phase evaluates the successes and failures during a systems development project, and to measure the results of a new Computerized Tran system in terms of benefits and savings projected at the start of the project.

Development Recap

A review of a project immediately after completion to find successes and potential problems in future work.

Post-Implementation Review

A review, conducted after a new system has been in operation for some time, to evaluate actual system performance against original expectations and projections for cost-benefit improvements. Also identifies maintenance projects to enhance or improve the system.

3.3.2 THE STEPS IN THE SOFTWARE TESTING:

The steps involved during Unit testing are as follows:

- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Complete code review of the module.
- Actual testing done manually.
- Modifications done for the errors found during testing.
- Prepared the test result scripts.

The unit testing done included the testing of the following items:

- Functionality of the entire module/forms.
- Validations for user input.
- Checking of the Coding standards to be maintained during coding.
- Testing the module with all the possible test data.
- Testing of the functionality involving all type of calculations etc.
- Commenting standard in the source files.

After completing the Unit testing of all the modules, the whole system is integrated with all its dependencies in that module. While System Integration, We integrated the modules one by one and tested the system at each step. This helped in reduction of errors at the time of the system testing.

The steps involved during System testing are as follows:

- Integration of all the modules/forms in the system.
- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Actual testing done manually.
- Recording of all the reproduced errors.
- Modifications done for the errors found during testing.
- Prepared the test result scripts after rectification of the errors.
- The System Testing done included the testing of the following items:
- Functionality of the entire system as a whole.
- User Interface of the system.
- Testing the dependent modules together with all the possible test data scripts.
- Verification and Validation testing.
- Testing the reports with all its functionality.

After the completion of system testing, the next following phase was the Acceptance Testing. Clients at their end did this and accepted the system with appreciation. Thus, we reached the final phase of the project delivery.

There are other six tests, which fall under special category. They are described below:

- **Peak Load Test:** It determines whether the system will handle the volume of activities that occur when the system is at the peak of its processing demand. For example, test the system by activating all terminals at the same time.
- **Storage Testing:** It determines the capacity of the system to store transaction data on a disk or in other files.

- **Performance Time Testing:** it determines the length of time system used by the system to process transaction data. This test is conducted prior to implementation to determine how long it takes to get a response to an inquiry, make a backup copy of a file, or send a transmission and get a response.
- **Recovery Testing:** This testing determines the ability of user to recover data or re-start system after failure. For example, load backup copy of data and resume processing without data or integrity loss.
- **Procedure Testing**: It determines the clarity of documentation on operation and uses of system by having users do exactly what manuals request. For example, powering down system at the end of week or responding to paper-out light on printer.
- **Human Factors Testing:** It determines how users will use the system when processing data or preparing reports.

3.4 Performance

3.4.1 Capacity

The software should be capable to handle the loads of the users as the users will be more for this software.

3.4.2 Availability

The software should be ready to carry out its task when user need it to be.
To measure the software availability, we can use:
Availability=Uptime% (Uptime + Downtime)

3.4.3 Latency

It is a time delay between the cause and the effects of some physical changes in the system being observed.

3.5 Manageability/Maintainability

3.5.1 Monitoring

Monitoring allows for proactive response, data security and data gathering and the overall good health of a computer system. While monitoring does not fix problems, but it does lead to more stable and reliable computer systems.

3.5.2 Maintenance

Software maintenance is the process of changing, modifying and updating software to keep up with customer needs.

3.5.3 Operations

After the releasing of the software the operations which are needful for the customer should be implemented.

3.6 System Interface/Integration

The system interface should be user-friendly and easy to handle because the users of this application may be from different entities. The interface should be simple and it has all the necessary functionalities.

3.7 Security

3.7.1 Protection

For any software security is the major concern that's way all the softwares undergoes software security testing before going to market to check its ability to withstand malicious attacks.

3.7.2 Authorization and Authentication

Authorization and Authentication is very important in terms of security of any software. Authentication is the process of verification of the identity of a user or system by various mechanisms like usernames, biometrics etc. while authorization is the process which grants or denies access to IT Resources based on the user's identity.

3.8 Data Management

For any software Data Management is very important in this process we are collecting, keeping and using data securely, efficiently. The goal of data management is to help people, organizations to optimize the use of data within the bounds of policy and regulations so that they can make decision and take actions that maximize the benefit to the organization.

3.9 Standards Compliance

Standard compliance is the practice of ensuring the software licenses procured by a particular organization are being used according to the stipulated terms of the provider. The most common use case is ensuring the number of licenses in use does not exceed the number purchased.

4. User Scenarios/Use Cases

The following GUI application will be used by the Government officials in order to keep the track record of the Census as well as the demographic rate of the population at various levels. It can also be used by the researchers who are doing some research work in the context of the population and its benefits. It can also be used by the

general users who need to collect the information for some analysis and record the same as information.

Deleted or Deferred Requirements

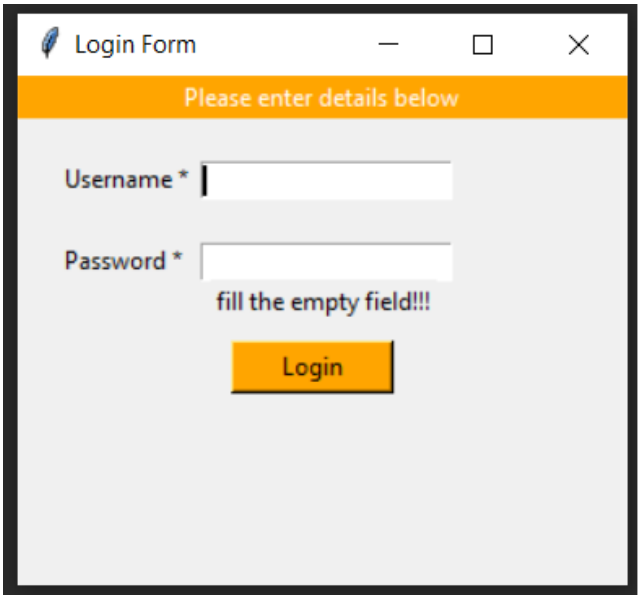
There is no such Deleted or Deferred requirement that is/ will be met by the user in order to make the system work effectively and efficiently. The system is very user-friendly and can be also installed on any of the systems which completes just the basic requirement of the system.

References

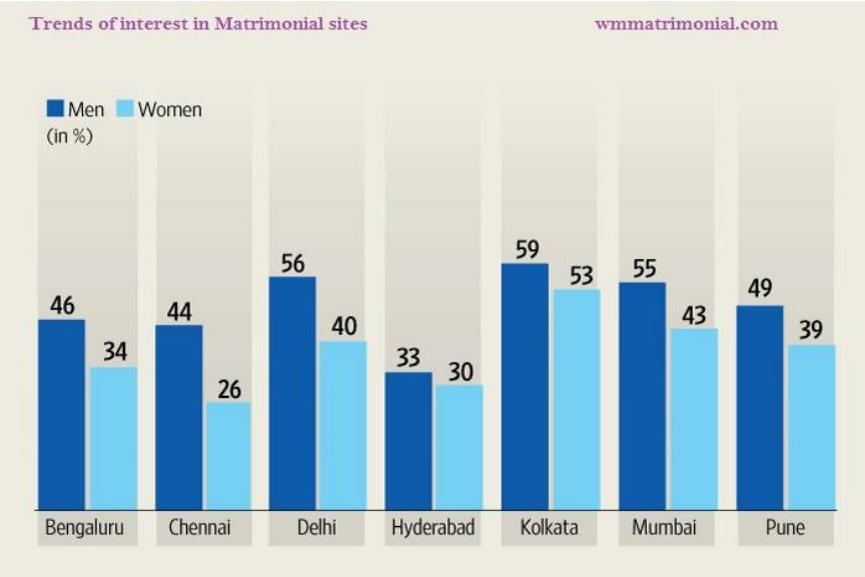
1. https://www.shadi.com/
2. https://www.javatpoint.com/python-tutorial
3. https://www.geeksforgeeks.org/python-programming-language/

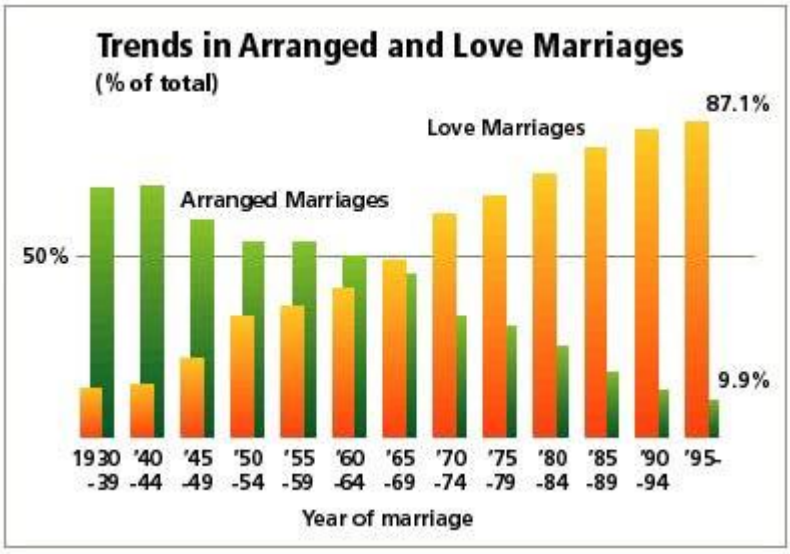
5. User Interface

5.1 Login Page



5.2 Home Page


Trends of interest in Matrimonial sites
wmmatrimonial.com
Men
Women
(in %)
46
34
44
26
56
40
33
30
59
53
55
43
49
39
Bengaluru
Chennai
Delhi
Hyderabad
Kolkata
Mumbai
Pune


Trends in Arranged and Love Marriages
(% of total)
Love Marriages
87.1%
Arranged Marriages
50%
9.9%
1930 -39
'40 -44
'45 -49
'50 -54
'55 -59
'60 -64
'65 -69
'70 -74
'75 -79
'80 -84
'85 -89
'90 -94
'95-
Year of marriage