

# **Online Matrimonial Application For Matchmaking Based on Personality Traits**



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## **Submitted by:**

Ahmed Ilyas	2018-CD-CS-01
Shayan Mukhtar	2018-CS-106
M Ahmad Usama	2018-CS-115
Zahid Ali	2018-CS-136
Abdul Samad	2018-CS-141

## **Supervised by:**

Dr. Talha Waheed

Department of Computer Science  
**University of Engineering and Technology  
Lahore, Pakistan**

# **Online Matrimonial Application For Matchmaking Based on Personality Traits**

Submitted to the Department of Computer Science, University of Engineering and Technology Lahore in partial fulfillment of the requirements for the Degree of

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in

**Computer Science.**

**Internal Examiner**

Signature:

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Name:

---

Designation:

---

**External Examiner**

Signature:

---

Name:

---

Designation:

---

**Chairman**

Signature:

---

Prof. Dr. Muhammad Shoaib

**Dean**

Signature:

---

Dr. Muhammad Kamran

Department of Computer Science

**University of Engineering and Technology  
Lahore, Pakistan**

# Declaration

We declare that the work contained in this thesis is our own, except where explicitly stated otherwise. In addition this work has not been submitted to obtain another degree or professional qualification.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

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# Abbreviations

<b>MBTI</b>	Myers Briggs Type Indicator
<b>MBT</b>	Myers Briggs Test
<b>PBS</b>	Pakistan Bureau Statistics
<b>CV</b>	Computer Vision
<b>ESTJ</b>	Extraverted Sensing Thinking Judging
<b>ENTJ</b>	Extraverted Intuitive Feeling Judging
<b>ESFJ</b>	Extraverted Sensing Feeling Judging
<b>ENFJ</b>	Extraverted Intuitive Feeling Judging
<b>ISTJ</b>	Introverted Sensing Thinking Judging
<b>ISFJ</b>	Introverted Sensing Feeling Judging
<b>INTJ</b>	Introverted Intuitive Thinking Judging
<b>INTJ</b>	Introverted Intuitive Feeling Judging
<b>ESTP</b>	Extraverted Sensing Thinking Perceiving
<b>ESFP</b>	Extraverted Sensing Feeling Perceiving
<b>ENTP</b>	Extraverted Intuitive Thinking Perceiving
<b>ENFP</b>	Extraverted Intuitive Feeling Perceiving
<b>ISTP</b>	Introverted Sensing Thinking Perceiving
<b>ISFP</b>	Introverted Sensing Feeling Perceiving
<b>INTP</b>	Introverted Intuitive Thinking Perceiving
<b>INTP</b>	Introverted Intuitive Feeling Perceiving
<b>DISC</b>	Dominance Influence Steadiness Compliance
<b>OCEAN</b>	Openness Conscientiousness Extraversion Agreeableness Neuroticism

# **Abstract**

Online matrimonial platform is developed for the purpose to let people find their compatible matches. Personality traits like introversion, extroversion, neuroticism and emotional instability can be used to predict an individual's behaviors in different life situations. These behavioral patterns are very important while making decision about partners as it leads to match stability. Traditional matchmakers don't rank the matches based on personality traits and allow matching only through the provided physical parameters. Physical parameters only shouldn't be a bedrock for finding matches. Our presented solution makes use of a combination of physical and personality traits, making sure a person chooses on the grounds of personality. The solution has been implemented to rank the potential matches based on the Myers-Briggs Personality Test. Myers Briggs test is a personality type indicator, it helps identify correlation among personality types as well. We have developed a matrimonial web application that uses a constraints-based approach to rank the matched profiles. The application contains mainly three main modules, which are profile creation, personality assessment, and ranked compatible matchmaking. People who are looking for a compatible match and find difficulty in real life, with the application of this portal, people are able to meet their compatible matches.

# **Chapter 1**

## **Introduction**

### **1.1 Overview of the Project**

The project includes a web application for matchmaking based on personality traits. There is a landing page where the user can explore the website and can navigate to different pages depending on their accessibility. To access the functionality of the project, the user will have to register in the application first. The user will have to provide valid details and information. After the user has been registered, the progress comes to the face recognition module, where the users identify their profiles by uploading a profile picture first and then matching it with a real-time web camera so that it can be assured by the admin side that the user who is trying to register in the system is real and the profile is being made with his consent. When the user has provided all the required information in the profile creation form, then the user will be taken to the personality assessment module where they will assess their personality. To assess the personality, the user will have to provide the answers to all questions provided in the assessment to fully evaluate their personality type. After the user gets their personality type, this personality type will be correlated with the compatible types of other users of opposite gender based on the best-suited personality type of Myers Briggs personality modeling and the physical parameters it has provided during the profile creation process and preferences. The user's personality type is part of the user's profile. The compatible matches will be shown by the ranking system which shows the compatible matches in some order. After a match has been found, the user can send a chat message through premium services[1]

## 1.2 Background

Existing systems find the matches based on physical characteristics only. Such systems do not rank the matches based on personality traits. The disadvantage of the existing system is that searching for a good life partner in this world is time-consuming and cost-effective. The online matrimonial system is used to overcome these drawbacks. The prior system contains matchmaking only based on physical phenomena. For example, name, religion, salary, etc, are not sufficient to assess and suggest a compatible match. Therefore, there is a need to develop a system that enfolds these limitations and provides a good solution. We have implemented a system that is overcoming the drawbacks of prior systems and are hopeful to maintain our system to achieve further levels of success. In addition, the background work gives the least importance to personality attributes and traits though it is a dominant affecting factor that needs to be considered while matchmaking.

## 1.3 Motivation

According to the Pakistan Bureau of Statistics 31.22%, 5.4% and 0.34% of Pakistani people are unmarried, widowed, or divorced respectively. This population finds matchmaking and marriage proposals very difficult. The problem statement is very easy to solve the rising social issue which makes marriages fail because of faulty matchmaking without looking into personality traits. Such factors made the need for a system that not only meets the physical requirements but also the personality and psychological requirements as well. Modeling this social issue through computational aspects and providing a less time-consuming and less expensive solution is the motive of this project. Automating the system can really solve time and cost drawbacks if compared to traditional systems.[\[2\]](#)

## 1.4 Objectives of the Project

### 1.4.1 Industry Objectives

As the Internet is the cornerstone of modern business, hence Internet-based matrimonial services aim to move forward in the modernization of matrimonial search and provide an optimized solution. Marriage portals or websites are great platforms for providing matchmaking services, as they can use resources and opportunities to connect with potential partners based on the information they provide. The main goal of the project is to provide a platform for people to find partners who share similar interests and personalities. Users can benefit from this application by displaying profiles of potential partners who meet specific requirements

and related information. Users will be able to access this information themselves in their own homes.

### **1.4.2 Research Objectives**

The primary goal of matrimonial applications is to provide the user with the best compatible match, depending on the needs of their physical characteristics as well as personal traits. Therefore, the goal is to replace the traditional process by automating the process of finding a partner and providing a better approach to the target audience. At this point, machine learning meets matchmaking and the system focuses on behavior-based personalization to make decisions easier. While existing matrimonial applications focus on matchmaking based on specific physical qualities, our goal is to evaluate not only physical criteria but mutual compatibility as well.

### **1.4.3 Academic Objectives**

One of the academic objectives we are going to achieve is to not only concentrate on a social issue but also provide computationally modeled solution that empowers its transformations with Artificial Intelligence techniques from traditional to automated ways of providing matrimonial services thus enhancing operational excellence such as time and money.

## **1.5 Problem Statement**

Existing systems find the match based on physical characteristics. But the drawback of such systems is they don't rank the matches based on personality traits. "To rank the potential matches based on the Myers-Briggs Test, we need a Matrimonial Application that uses a personality-based as well as the constraints-based procedure to rank the matched profiles.

## **1.6 Scope of the Project**

Marriage is not a plain-sailing process, it's rather a virtual turning point in a person's life. In today's modern time people like to find their companions on their own terms regarding physical and personality compatibility requirements. One prominent aspect of globalization that is contributing to social changes is the rise of information technology and the internet. So, it's a great opportunity to utilize the resources and modern techniques to provide a better solution to social problems like match-making. Matrimony will continue to grow at a significant rate in the future and it is easier to assess that it will reach an unprecedented growth in the future than expected. So we can say that our proposed application

is the need of the hour. It will not only provide options to concerned parties but also improve their quality of decisions. Moreover, design-dependent parameters such as reliability, maintainability, supportability, usability, sustainability, and affordability make our application unique and desirable. Our application is also economically feasible thus everyone in the need of a matchmaking service can benefit from our application.

## 1.7 Challenges

The technical challenge we faced through out the project was the computational modelling of the personality traits as it required a lot of understanding to model personality traits in computing and making a questionnaire. Furthermore, the major social challenge and difficulty we are going to face is to desensitize the concept of matchmaking for marriages to the target community for future work. People consider this application from a western perspective as a dating site. But our project is about marriage instead of contemplating it as a dating site. Furthermore, people are possessive about their personal information so they might not feel comfortable sharing their data. There is also a major issue from which educated people are influenced, which is the marriage planned by their parents within their own families and relatives who do not stay for long due to personality and psychological mismatch attributes. In addition, personality correlation is wide research, and getting a full accuracy of personality-related details is not possible due to complex human psychology. It is simply not possible to fulfill all the required behavior and personality-related attributes.

## 1.8 Assumptions and Constraints

Following are assumptions which were kept in mind during the implementation of the project:

- The user must provide authentic personal details during profile creation.
- The user should attempt the personality assessment test to the best of their awareness.
- The user can not chat with the compatible matches unless it buys a premium subscription.
- The user may feel frustrated to attempt the long personality assessment, but they are still assumed to attempt them with actual answers.

## 1.9 Possible Application of Work

The main purpose of the matrimonial sites is to provide brides and grooms with a great matchmaking exposure. These matrimonial services use the information provided by users to help open the door for the matchmaking business. People can use this matrimonial portal anytime and anywhere to create a profile and use it for a purpose. This work has evolutionary automated the matrimonial system compared to the traditional system. Our target audience is the community that is capable of getting married and looking for a compatible match. People can use this application for transparent searching of potential matches.

# Chapter 2

## Literature Review

To get started with my research, and information for online matrimonial application and Personality Based Matchmaking, searches included terms and phrases such as "personality-based matchmaking algorithms," "marriage apps," and "personality type algorithm." . These searches provided generic information relevant to my research, but did not provide adequate information regarding specific algorithms or Matrimonial apps. I've refined my search to include specific app names like: "Decision Tree Algorithm", "Constraint Satisfaction Problem", "Genetic Algorithm" and Matrimonial Applications. With this refinement, I was able to gather a variety of sources that specifically focused on questions about online marriage and the algorithm based on personality uses.

To the problem of marriage we were to propose a digital system which not only solve the problem of a satisfied matchmaking and personality based algorithm. We not only took into consideration of physical traits but personality traits well. We know there's work already been done in this regard but we dig in and reviewed early system approaches to solve the same problem. The first problem to solve was to find the personality of a person through use of computer, it is not an easy task as personality of humans can be very confusing and deceptive. Personality represents the mixture of characteristics and qualities that constitute the distinctive characteristics of an individual. including thinking, feeling and acting. Traditionally, the method of self-assessment through a questionnaireIt is the most common means of identifying the personality. From the recommendation and advertising systems Campaigns have evolved rapidly, personal computing has become a popular research field to provide customization to users. Currently, the researchers used social network data to automatically predict personality. However, it is complex to extract data from social networks, as they are noisy, in free form and of variable

duration and multimedia. This article proposes a C4.5 decision tree algorithm for automatically Predict personality according to the Big Five model. The Big Five Inventory and the ZeroR algorithm were included serve as a basis for performance evaluation. Experimental evaluation showed that C4.5 it performs better than ZeroR in terms of accuracy.[3]

Marriage is not a plain-sailing process, it's rather a virtual turning point in a person's life. In today's modern time people like to find their companions on their own terms regarding physical and personality compatibility requirements. One prominent aspect of globalization that is contributing to social changes is the rise of information technology and the internet. So, it's a great opportunity to utilize the resources and modern techniques to provide a better solution to social problems like match-making.

Matrimony will continue to grow at a significant rate in the future and it is easier to assess that it will reach an unprecedented growth in the future than expected. So we can say that our proposed application is the need of the hour. It will not only provide options to concerned parties but also improve their quality of decisions. Our application is also economically feasible thus everyone in the need of a matchmaking service can benefit from our application. The way online matrimonial sites usually develop access, communication services and matchmaking doesn't always provide best matrimonial results; Of course, sometimes they undermine such results. As for access, meet potential matches through online matrimonial profiles reduces 1 to capture it experiential aspects of human interaction which are essential to assess your compatibility with potential matches. In plus, easy access to a large number of potential matches can awaken an evaluative and evaluative mentality that brings in online marriage to objectify potential partners and could even change your mind to be with one of them. That it can also cause people to make lazy and unwise decisions when selecting from the wide range of potential matches.[4]

The primary goal of matrimonial applications is to provide the user with the best compatible match, depending on the needs of their physical characteristics as well as personal traits. Therefore, the goal is to replace the traditional process by automating the process of finding a partner and providing a better approach to the target audience. At this point, machine learning meets matchmaking and the system focuses on behavior-based personalization to make decisions easier. While existing matrimonial applications focus on matchmaking based on specific physical qualities, our goal is to evaluate not only physical criteria but mutual compatibility as well.

The ability to predict marital pleasure based on the personality qualities of both partners has a long history, and past research has proven the robust correlations between relationship quality, functioning, and outcomes, and broad personality factors. The Five-Factor Model, which describes broad personality qualities along the five basic dimensions of Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C), is the most used method for assessing personality traits (C). The FFM qualities appear to be connected with marital distress, despite the fact that this model was not developed to detect dysfunction. Neuroticism appears to be the most consistent predictor of marital or relationship dissatisfaction among these five qualities. Nonetheless, relationship quality is also highly associated with the other FFM characteristics. This individualistic method has given significant results regarding the predictive value of personality and the associations with relationship satisfaction, but it treats the couples as two independent individuals and so does not account for the "couple."

By investigating transactions at the dyad level, recent research has surpassed this individualistic method. The majority of this couple-focused research has examined the correlation between genuine personality similarity between spouses and personality satisfaction, with contradictory findings. found no correlation between actual personality similarity as judged by the Sensation Seeking Scale and the Eysenck Personality Questionnaire and relationship happiness in 65 married couples. Similarly, actual personality similarity was found to have little effect on relationship satisfaction, and Watson and colleagues (2004) found little support for the notion that couples with more similar personalities are more content. Using a 12-year longitudinal design, they also found that greater overall similarity to the Big Five predicted negative slopes in long-term married couples' relationship happiness. However, numerous studies have found that personality similarity has a major impact on relationship happiness. Similarity on the California Q-Sort was found to predict greater marital satisfaction among couples in their forties and sixties, according to a study of married couples. Greater resemblance between partners was related with better levels of marital happiness, according to a cross-sectional study including 248 married couples. Robins and colleagues (2000) discovered that similarity in neuroticism was related to greater relationship satisfaction among college-aged couples. When actor and partner effects were examined, favourable relationships were observed between genuine personality resemblance and satisfaction. [5]

## 2.1 Methods/Procedures

The resources used for this literature review come from academic sources, academic journals, and recent articles published in the media. In particular, when searching for academic papers, I used the ProQuest and Google Scholar databases. I found it necessary to use recently published articles online and in magazines because they provided this research with experiments related to online dating apps and knowledge of online matrimonial app users. Search engine terms and phrases were Uses and Rewards Theory, online matrimonial Apps, Tinder, Bumble, and Impersonation. Some of the research contained adequate information about my research, as mentioned earlier in the methods part of this chapter. However, some research did not have the specific information needed regarding specific representation, personality based matchmaking, and specific online matrimonial applications, so my search for words and phrases was more specific. While researching sources for this research, I made sure to look for information that was not influenced by my beliefs so that I could gather different points of view. For example, looking for articles written by men on online matrimonial apps so that my search is not limited to women's literature. Finding a variety of articles on different types of online matrimonial apps, such as MuzzMatch and Shaadi.com, was important to this research because it shows many different views on online Matrimoonial and shows how an individual's representation can differ on each specific app.

## 2.2 Findings

### 2.2.1 Online Matrimonial Applications

Marriage is not a plain-sailing process, it's rather a virtual turning point in a person's life. In today's modern time people like to find their companions on their own terms regarding physical and personality compatibility requirements. One prominent aspect of globalization that is contributing to social changes is the rise of information technology and the internet. So, it's a great opportunity to utilize the resources and modern techniques to provide a better solution to social problems like match-making.

Matrimony will continue to grow at a significant rate in the future and it is easier to assess that it will reach an unprecedented growth in the future than expected. So we can say that our proposed application is the need of the hour. It will not only provide options to concerned parties but also improve their quality of decisions. Moreover, design-dependent parameters such as reliability, maintainability, supportability, usability, sustainability, and affordability make our application unique

and desirable. Our application is also economically feasible thus everyone in the need of a matchmaking service can benefit from our application.

The major social challenge and difficulty we are going to face is to desensitize the concept of matchmaking for marriages to the target community. People consider it from a western perspective as a dating site. But our project is about marriage instead of contemplating it as a dating site. Furthermore, people are possessive about their personal information so they might not feel comfortable sharing their data. There is also a major issue from which educated people are influenced, which is the marriage planned by their parents within their own families and relatives who do not stay for long due to personality and psychological mismatch attributes. In addition, personality correlation is wide research, and getting a full accuracy of personality-related details is not possible due to complex human psychology. It is simply not possible to fulfill all the required behavior and personality-related attributes.

In Islamic culture, marriage is regarded as half of a person's belongings.[\[6\]](#) muslim Men's faith in women's online matrimonial profiles from Muslim countries like India and Pakistan shows a positive trend. Before the Internet and huge migration. In Islamic countries, like in the US and Europe, the bride or groom's family arranges the marriage. Ahmed, p. noauthor nodate muslim Regardless, conditions are shifting. Young Muslim men and women, especially those living in Western nations, are increasingly required to find their own spouses. The Muslim community is multiethnic and culturally diverse (Lo and Aziz, 2009, pp. 1-20).[\[6\]](#)

The public discourse, such as news coverage, generally focuses on simplified reporting, which integrates a variety of app causes into a single category of behaviour. This is typically the case when studying marital applications. The most popular apps' data suggest that users are seeking a variety of romantic relationships, ranging from one-time erections to long-term companionships, as well as completely separate erotic or romantic activities. This would be in line with our predicted user base. These sites provide more information, affiliation, and security. This is especially important for sexual minorities and marginalised populations who have no other method to communicate with like-minded people. Also, uses and explanations vary according on demographics and personality types. The empirical study in this field, notably user surveys, shows that marital applications have a wide range of motives and intended functions.[\[7\]](#)

### 2.2.2 Personality Based Matchmaking Algorithms

CSP involves giving values to variables so they meet a list of constraints. Each constraint is the Cartesian product of a subset of variables' domains, or permissible assignments. All of this work's constraints are binary, based on only two variable domains. arcs represent constraints and nodes represent variables in a constraint graph. CSPs have four sorts of parameters: the number of variables, the number of domain values or domain size, the number of constraints, and the number of constraint value tuples. When all variables have the same domain size, we use a single parameter. If nothing else, a parameter's representative value is usually the mean. Problem density is the ratio of plausible constraints in a graph with n variables to actual constraints. The stringency of a constraint is the (relative) number of unsatisfactory tuples. If tightness varies between limits, we'll use the average as a proxy. In a CASP, the constraint solver must first learn the constraints before solving the problem. By assuming the presence of a universe of limitations, it is possible to explain the scenario. Our cosmos has a restrictive framework, P. The CSP solver, Matchmaker, understands a subset of problem P's constraints, K, but must still solve P. Before designing an efficient solution in a reasonable period, it must first learn P's remaining restrictions. Time is needed.[\[8\]](#)

GAs apply evolutionary biology concepts to computer science to approximate answers to hard problems. Genetic algorithms (GAs) simulate inheritance, mutation, natural selection, and recombination [\[8\]](#). Most GAs are computer simulations in which a population of alternative solutions to an optimization problem improves over time. Each solution is a chromosome and may undergo genetic modification. Each chromosome is a permutation of integers for this inquiry. Each integer is a consumer. The chromosome's length equals the number of buyers in the scenario. Given a fixed integer permutation of 1 to N vendors, each chromosome selects which buyer goes with which seller. Changeable test settings include population size. First, a random population is created. Each generation's members are examined for fitness. Best-match individuals, for example, constitute an archive population that preserves the most effective solutions found so far. Winners in binary tournaments form a mating pool. Because the quality of the solutions here can vary, especially in prior generations. Two random parents are then subjected to cycle crossover [\[9\]](#) and mutation to create two offspring. This process is done until population N is full. After being reviewed, the new population competes for the archive. This process continues until a predetermined number of generations pass, the population plateaus, or termination requirements are met.[\[9\]](#)

Personality has long fascinated sociologists and psychologists. Psychiatrist Carl

Jung is credited with creating the "Myers-Briggs type indicator" to better understand personality types. Using Carl Jung's psychological types, Isabel Myers-Briggs and Katherine Briggs established the Myers-Briggs Type Indicator Test in the 1920s. The test was named after them. The Myers-Briggs Type Indicator® test has sixteen personality types, as depicted in Figure 1 [15]. The MBTI INTP profile, for example, leans more toward introversion, intuition, thinking, and intuition. We can categorise the person's desires or behaviours based on the label, and the computer can gather more data. Overall, the 16 personality types reflect preferences in four areas. Each dimension represents two people. The four dimensions are E-I, S-N, T-F, and J-P. (J-P).

The language or data associated with a topic can reveal qualities associated with various personality types. These traits are retrievable. Inverse Document Frequency (FIDF) analysis may be performed on you using social media content you publish, such as videos, photographs, or links (TF-IDF). TF-IDF can be used to locate and evaluate a user's most popular phrases. The text data can infer other information besides the URL. The list goes on and on. These other features are linked to a variety of personality types. [Example:] When users of social networking sites are assigned an MBTI type, the quantity of words or ellipses in their posts generates additional personality traits.

For this study, we used Twitter as a data source to identify personality traits. This social media network is a rich source of textual data as well as information about user activity. People are generally open about sharing their thoughts, emotions, and viewpoints, resulting in a large and useful collection of personal data [10]. Furthermore, current study has resulted in the Big Five Inventory Personality Test (BFI). In addition to measuring all five personality traits, it may also test six underlying facets for each trait. Then we asked each of the 26 speakers to provide their Twitter accounts and complete the survey. Pre-processing removes users' text-based features including removing URLs, mentions, and hashtags. Users made these utilities for users. We also delete retweets with no new text. They then averaged the results from each tweet vector to get the final personality characteristic score.[10]

## 2.3 Comparison Table

TABLE 2.1: Comparison table for matrimonial applications

Application Name	Platform	Personality Based Assessment	Ranking of profiles
<b>Tinder[1]</b>	Android IOS	Customized matches on physical traits No Personality-based assessment	Tinder does ranking based on physical traits algorithm.
<b>Muzzmatch[2]</b>	Android IOS	Personality based match making is not available for this application	No ranking algorithm. Can view matches without profile completion. Physical Constraints Match-making
<b>Shaadi.com[4]</b>	Web based	Multiple match scores on a curated database of verified profiles	Ranking of profiles is based on filtering
<b>Pakistani Matrimony</b>	Android	Preferences based matchmaking	No personality-based match making for ranking Difficult to use Clumsy UI
<b>Muslim Matrimony</b>	Android	Personality based assessment is not present	No ranking of profiles. Basic ranking based on filters

## 2.4 Shortcoming in existing systems

These proprietary algorithms are based on either physical or personality factors, but not both. This is not ideal for marriages, which should have been achievable with both algorithms combined for a long time. These services also don't reveal their inner workings and merely present profitable matches. This does not promise a happy marriage and does not consider the challenges that may arise if people accept matches without first researching their personalities. Given this, it seems unlikely that any matching algorithm that pairs two people based on information

accessible before they meet will be able to explain more than a small proportion of the variance in long-term romantic relationship features.[\[4\]](#)

Following are assumptions which were kept in mind during the implementation of the project:

- The user must provide authentic personal details during profile creation.
- The user should attempt the personality assessment test to the best of their awareness.
- The user can not chat with the compatible matches unless it buys a premium subscription.
- You can't meet people physically, so there can be trust issues.
- Some matrimonial websites are not trustworthy and therefore may not provide you with matches after signing up for their premium membership plans.
- You have to be tech savvy for that.
- Fake Profiles of people trying to scam others
- Obsolete profiles gets you no response
- Marriage sites are commercial sites...they don't care.

# **Chapter 3**

## **Personality Assessment and Profile Ranking**

### **3.1 Personality Assessment**

A personality assessment is a technique or a tool that is developed to assess the personality of human beings by measuring the characteristics of humans that are exhibited in different life situations. The main purpose of a personality assessment test is to understand the character attributes of the person. There are many personality assessment tests available for the purpose to assess human personality depending on their own pros and cons. I.e., the famous personality assessment tests are mentioned below:

- MBTI (Myers-Briggs Type Indicator) personality assessment test: It is based on sixteen personality types, there is another sixteen personality assessment test available which is a framework of MB type indicator. It is the widely used personality assessment model.[\[11\]](#)
- DISC (Dominance, Influence, Steadiness and Compliance) personality assessment test: It is less time consuming than that of MB type indicator.
- Big five personality assessment test: It is based on five personality types (OCEAN). It is also a most recognized, established yet old approach of personality assessment.

#### **3.1.1 MBTI Personality Assessment test**

We have chosen the MBTI personality assessment test for its extensive insight and description of the personality type. MBTI is popular because it describes adequate

details about the type, and if the personality type has been assessed, one can benefit from it for a lifetime since the personality type is unlikely to change normally. The goal of the MBTI is for respondents to further explore and understand their personalities, including their likes, strengths, merits, and flaws for possible career preferences, and compatibility with others.[12]

There are a total of 16 personality types involved in the MBTI personality assessment test which can be seen in the below figure:

<b>ISTJ</b> The Inspector Serious, Practical, Hard worker	<b>ISFJ</b> The Nurturer Generous, Warm, Cooperative	<b>INFJ</b> The Advocate Idealist, Deep Thinker, Inspiring	<b>INTJ</b> The Mastermind Strategic Thinker, Interested in ideas
<b>ISTP</b> The Craftsman Rational, Logical, Experimenter	<b>ISFP</b> The Composer Warm, Friendly, Charming	<b>INFP</b> The Idealist Poetic, Reserved, Daydreamer	<b>INTP</b> The Thinker Logical Minded, Creative
<b>ESTP</b> The Entrepreneur Social Interaction, Energetic, Smart	<b>ESFP</b> The Entertainer Lively, Fun, Entertainer	<b>ENFP</b> The Campaigner Sociable, Creative, Enthusiastic	<b>ENTP</b> The Visionary Knowledgeable, Theories & Facts
<b>ESTJ</b> The Supervisor Honest, Dignified, Dedicated	<b>ESFJ</b> The Provider Social Butterflies, Caring, Popular	<b>ENFJ</b> The Giver Idealistic, Ethical, Outspoken	<b>ENTJ</b> The Commander Bold, Leadership, Challenges

FIGURE 3.1: Myers Briggs personality type

### 3.1.2 Computational modeling of personality assessment test

Advancement in computational technology is important for the development of computational personality assessments as it is been a pivotal part of the development. As they allow researchers to numerically and objectively represent their behavior and use computational modeling (such as machine learning learning technique called decision tree) to efficiently analyze the data. The personality assessment algorithm is implemented using a decision tree in python to evaluate the

personality type of the person. A decision tree is a classification as well as a regression technique that is used to determine potential results from the series of options. The personality assessment test is like a questionnaire provided to users. The questionnaire consists of a series of questions, each with multiple answers, and the user must choose the one that best suits their personality, thoughts, feeling, behavior, and attitude in different life scenarios. The questionnaire contains questions which when answered by the user, the extent of E/I, S/N, T/F and J/P is evaluated and a four character personality type is assigned to the user. A decision tree is used to implement and model the user's extent of personality attributes and functions to the MBTI personality type. Decision tree is a classification method that classifies and labels the user's personality type according to the answers provided by the user and finally assigns the personality type to the user. Basically, the system is working in a sequence where the user firstly provides the answers and these answers are stored in four NumPy arrays. These four arrays are iterated in a loop and each iteration returns a personality character and its personality is identified from the eight attributes (i.e., Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, Judging-Perceiving) of the MBTI personalities. And in this way, a four character personality type is assigned to the user.

### 3.1.3 Working

The data set is built with all the possible combinations of the answers like -2, -1, 0, 1, 2 from the questionnaire outputs. Then the data is split into training data and testing data. The model is trained using the Gini decision tree classifier which was imported from sklearn tree. The model fits in the attributes using the Gini. Then this model was saved through the pickle object serialization library of python. So the model was saved as the trained model. Then it comes to system where the user firstly provides the answers and these answers are stored in the arrays. These arrays are iterated in a loop and each iteration returns a personality character and the personality type is evaluated from the eight attributes (i.e., ESTJ/INFP).

- **Root Node:** It includes all the population that is further divided into two homogeneous sets as it is a binary tree.
- **Splitting:** This is the process of diving the node into sub-nodes based on its gini.
- **Decision Node:** It is what when a child node is further divided into its child nodes.

- **Leaf Node:** Leaf nodes are the potential outputs or the labels of the decision tree and in our case it provide a personality character output. It is repiculate four times to get four MBTI personality characters which leads to an MBTI personality type.

### 3.1.4 Applications

Following are the important applications of the personality assessment test:

- Personality matchmaking: We are using this application of the personality assessment test for online matrimonial application for matchmaking based on personality traits.
- Grouping employees for a specific task: Grouping compatible personalities can lead to productive work output.
- Screening candidates: There are companies for whom candidates personality is the major factor, this algorithm can be used to get a personality type and then matching it with the details of compatibility tables for the result understanding.
- Treatment of psychological problems: psychologist can use this personality assessment tool to assess the personality of the person and then treating the patient according to its personality. personality traits play an important role in the field of psychology.

### 3.1.5 Assumptions

Following are the important assumptions that are taken into account for better results of the personality assessment test:

- The test-takers are not trying to present the supreme model of themselves. It is assumed that they are being honest with answering the questions.
- It is assumed that they read the guidelines and understand that the assessed personality type might not be the personality type the user was desiring.
- It is the nature of the human that they may try to guess answers that may lead to an ideal personality type and they start answering the questions that way. It is assumed that they should be avoiding this thing and answering questions by avoiding such guesses.

### 3.1.6 Drawbacks

Following are the major pitfalls of the personality assessment test:

- Assessment could be lengthy and time-consuming. Those who are attempting the test may get frustrated while attempting the lengthy questionnaire.
- Assigning points to questions related to a specific personality attributes are highly subjective.
- Personality tests have some extent of assigning a person with its personality type who has attempted the test. So reliability may be affected which may lead to inconsistency.
- The main drawback of the assessment is that people are not good at accurately describing and explaining their own behavior in different situations.
- Answering the questionnaire with fake answers can directly lead to roughly related personality types since the user (test-takers) did not provide actual answers or for being engaged in deception.

## 3.2 Profile Ranking

Profile ranking is the process of ranking and suggesting compatible profiles based on the potential matches as well as the preferences added by the user. When the personality has been assigned to the user after they have assessed their personality, the profile is then screened and filtered for its compatible matches first and then it goes for preferences score to suggest the compatible profiles to the user.

### 3.2.1 Personality correlation

When a personality type is assigned to a user, a personality association occurs, and users with that personality are associated with compatible matches. The following table shows personality types and compatible personalities that for a particular personality type, which of the other personality are well-suited. The compatibility details are provided in many sites and official manual of MBTI personality types. The module is implemented through basic filtering control statements, where compatible personality types are only suggested to the user based on personality type. The following table shows the details of type-dependent compatibility.[\[13\]](#)

#### 3.2.1.1 Introvert Compatibility

TABLE 3.1: Introvert Compatibility Table

TYPE	Compatible Types	Reason
ISTJ	ENTP and ENFP	The extrovert personalities and laid-back traits work alongside the sometimes serious nature of the ISTJ.
INTJ	ENTP and ENFP	Their relaxed nature lets them appreciate the INTJ's independence and they can support them in social situations.
ISFJ	ESFP and ESTP	ISFJs nurturing, planning traits are balanced nicely by these extrovert personalities.
INFJ	ENFP, ENTP, INTJ and INFJ	Compatible with a range of personalities as they are good, instinctive listeners.
ISTP	ESFJ and ESTJ	ISTPs live in the present, whilst the extrovert types enjoy planning which makes for a balanced relationship.
ISFP	ESTJ and ESFJ	The ISFP benefits from the structure that the ESTJ or ESFJ can bring to their lives.
INFP	ENFJ and ENTJ	INFPs are led by feelings, which these extrovert types can intuitively understand.
INTP	ENTJ and ENFJ	The INTP needs space, and these extrovert types know when to step back and let them breathe.

### 3.2.1.2 Extrovert Compatibility

TABLE 3.2: Extrovert Compatibility Table

TYPE	Compatible Types	Reason
ESTP	ISTJ and ISFJ	ESTPs can help the introvert to enjoy new experiences with them, and both types are not swayed by their emotions.
ESFP	ISTJ and ISFJ	ESFPs will take the ISTJ and ISFP's introversion as a challenge, creating a fun relationship or companionship.

ENFP	INFJ and INFJ	These introverts can balance out the impulsiveness of the ENFP
ENTP	INTJ and INFJ	Both the ENTP and the introvert types here have a passion and appreciation of knowledge.
ESTJ	ISTP and ISFP	These types are not overly emotional, but the ESTJ's need for structure balances the introverts laid back ways.
ESFJ	ISFP and ISTP	Driven by emotion, the ESFJ needs the logic of the ISFP or ISTP to create a well-rounded dynamic.
ENFJ	INFP and INTP	The ENFJ and these introverts are equally intuitive, so can easily cater to each other's needs within a relationship.
ENTJ	INTP and INFP	ENTJs aren't comfortable discussing emotional topics, which these introverts understand.

### 3.2.2 Ranking system

This module aims to display user-compatible proposal matches based on percentages obtained from physical and personality-related parameters. The ranking system displays suggestions in decreasing percentages from the most suitable profile to the least suitable profile. This module does this by filtering profiles firstly by opposite gender, then by weighted personality compatibility, and finally by prioritizing profiles by physical parameters and weighted preferences constraints. These constraints are satisfied by giving some scores to these settings and calculating the ratio.

#### 3.2.2.1 Working

Assuming that the user has assessed its personality using personality assessment algorithm and a four characters personality type is assigned to it depending on the assessment they attempted. Then this user type is matched with the compatible matches based on the provided compatibility tables of introvert and extrovert personalities. It is an easy procedure to get suggestions of the compatible profile tables for matchmaking just by applying filters to the personalities that this specific personality type is suitable for those of the following profiles. But the challenge was also to get profile suggestions through their combination that is required physical parameters of the user as preferences as well as the personality traits. To get this

done, a weighted scoring technique is used to get a calculated percentage that shows that the following profile has these percentages of compatibility.

# **Chapter 4**

## **Proposed Methodology**

### **4.1 Proposed Solution**

It uses personality assessment and correlation to improve the match-making process by keeping personality characteristics as well as other preferences, specified by the user, into account when making matches. The system will facilitate users by prioritizing personality traits over physical traits via matchmaking that takes into account both personality and physical traits. Current systems provide matchmaking services based exclusively on physical characteristics, which are not sufficient and suitable parameters for profile matching. We are using Myers Briggs's Type Indicator to assess personality types. As part of the profile registration process, users will take personality tests to determine their personality type. In addition, they will be able to add preferences, physical and personality characteristics, and what they need in a partner. As a result, our system will provide our users with potential matches based on the criteria they specify. Users will be able to communicate with matches via an app messaging facility and get contact information after buying subscriptions. We propose a solution that uses the Myers Briggs Type Indicator to help identify personality compatibility and correlations.

### **4.2 General Flow**

The web application we developed offers a wide range of key functionalities and is easy to use. Our application is designed primarily for administrators and online users. The administrator can manage other admins' profiles if necessary. Administrator can manage users' profiles. By managing subscriptions, the admin makes sure that users are provided with certain features according to their subscription packages. Furthermore, users create their accounts and complete their profiles for further processing. After signing up users are required to take a personality

test that identifies their personality type and the results are saved to their profile. Users then add their traits for profile completion. After being done with profile creation, users can add/edit their preferences for the match they are looking for. Based on specified preferences, users are shown a list of potential matches that correlate with their personality type and preferences as well. Users can view profiles of prospective matches and they are provided with certain subscription packages for getting more features like chatting with matches and getting their contact info etc. This way users are provided with a secure way to communicate with others and their privacy is ensured during the whole process.

### 4.3 General Proposed Model

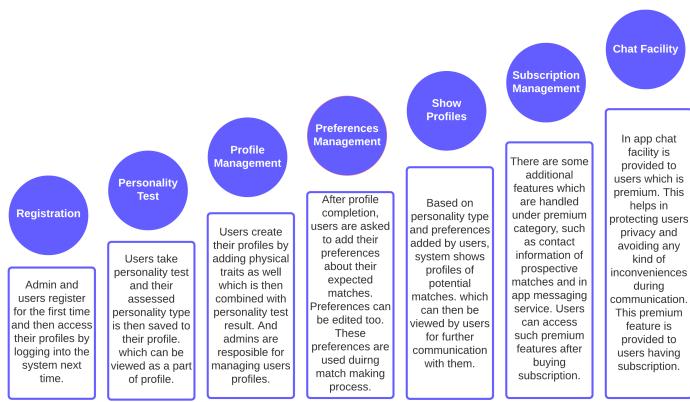
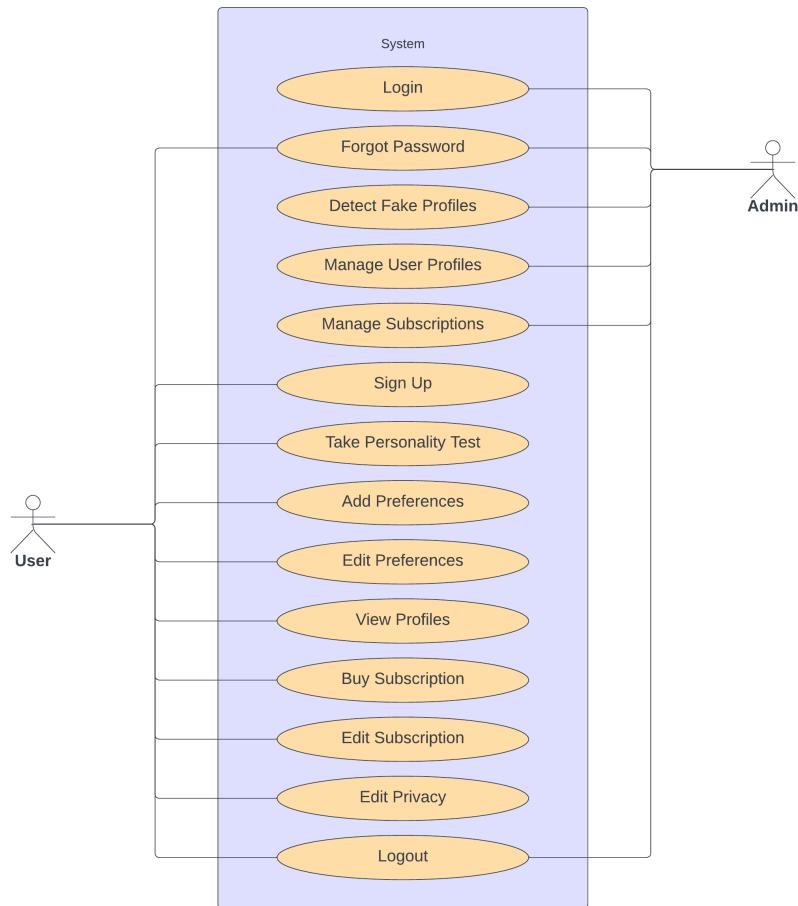


FIGURE 4.1: The General Model Diagram of Online Matrimonial Application

## 4.4 Use Case Diagram



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FIGURE 4.2: The Use Case Diagram of Online Matrimonial Application

## 4.5 Use Cases (Web App)

### 4.5.1 Use Case UC-1: Admin Login

**Description:** This use case is about successful administrator login after providing valid login details.

**Pre-Conditions:**

1. Admin should have already been registered.
2. Admin should have already been registered.
3. All must-required information about the admin should be available in the database.

4. Databases should be available in online mode.

**Normal Flow:**

1. The administrator enters valid login details.
2. Administrator clicks on the login button.
3. System confirms and validates the data.
4. Admin successfully logins the account.

**Alternative flow:**

- 1a. There is a problem with the administrator's login details.
  - Administrator provides required login details.
  - Administrator continues from step 1.
- 3a. There is a problem in the data provided, some data needs to be corrected
  - Administrator checks the available information and corrects the error.
  - Administrator continues from step 3.
- 3b. There is a problem in the data validation. The data provided is not valid.
  - Admin checks the validation of data and corrects the information.
  - Admin can recover a password if forgotten using the forgot password link.
  - Administrator continues from step 3

**Post-Conditions:**

1. Admin successfully logins the account.

**Authority:** Administrator

#### 4.5.2 Use Case UC-2: Manage User Accounts

**Description:** This use case is about managing (adding, deleting and updating) User accounts in the existing system with the privileges defined at time of user account creation.

##### Pre-Conditions:

1. All must-required information about the new user should be available.
2. Database should be available in online mode.

##### Normal Flow:

1. Administrator opts to add a new user account.
2. System asks for necessary information.
3. Administrator provides all the required information and opts to complete the operation.
4. System after confirmation adds the new account.
5. System sends the account creation email to the administrator's email id and user's email address.

##### Alternative flow:

- 4a. There is a problem in the data provided; some data needs to be corrected.
  - Administrator checks the available information and corrects the error.
  - Administrator continues from step 3.

##### Post-Conditions:

1. A new user account is successfully created.

**Authority:** Administrator

### 4.5.3 Use Case UC-3: Administrator Logout

**Description:** This use case is about successfully logging out administrators.

**Pre-Conditions:**

1. Admin must be logged in through valid login details.
2. Admin must be able to perform all the required operations.
3. There must be an option to logout as an administrator.
4. Databases should be available in online mode.

**Normal Flow:**

1. Administrator logs in the account.
2. System validates the data.
3. Administrator successfully logs into the account.
4. Administrator performs all the required operations.
5. Administrator clicks on the logout button.
6. System successfully logs out the administrator.

**Alternative flow:**

- 2a. There is a problem with the Admin login account.
  - Admin can recover password using forgot password.
  - Admin can again try to login Admin continues from step 1.

**Post-Conditions:**

1. Administrator successfully logs out of the system.

**Authority:** Administrator

#### 4.5.4 Use Case UC-4: User Sign Up

**Description:** This use case is about adding a new user to an existing system. New user can sign up any time he wants if he hasn't already made an account.

**Pre-Conditions:**

1. All must-required information about the new admin should be available.
2. Databases should be available in online mode.

**Normal Flow:**

1. New User by clicking on the sign up button opts for creating a new account.
2. System asks for necessary information.
3. User provides all the required information and opts to complete the operation.
4. System confirms and validates the data.
5. System creates a new account successfully.
6. System sends the account creation email to the administrator's email id and user's email address.

**Alternative flow:**

- 1a. There is a problem with the User's login details. Required information is not provided.
  - Users can check the login details and correct it.
  - User continues from step 1.
- 3a. There is a problem in the data provided, some data needs to be corrected.
  - User checks the available information and corrects the error.
  - User continues from step 3.
- 4a. There is a problem in the data validation. The data provided is not valid.
  - User checks the validation of data and corrects the information.
  - User continues from step 3

**Post-Conditions:**

1. A new User account was successfully created.
2. New User can login the account using his/her login details.

**Authority:** User**4.5.5 Use Case UC-5: User Login**

**Description:** This use case is about successful User login after providing valid login details.

**Pre-Conditions:**

1. Users should have already been registered.
2. All must-required information about the user should be available in the database.
3. Databases should be available in online mode.

**Normal Flow:**

1. User enters valid login details.
2. User clicks on the login button.
3. System confirms and validates the data.
4. User successfully logs in the account.

**Alternative flow:**

- 1a. There is a problem with the User's login details.
  - User provides required login details.
  - User continues from step 1.
- 3a. There is a problem in the data provided, some data needs to be corrected.
  - User checks the available information and corrects the error.
  - User continues from step 3.

3b. There is a problem in the data validation. The data provided is not valid.

- User checks the validation of data and corrects the information.
- User recovers password if forgotten using forgot password link.
- User continues from step 3

**Post-Conditions:**

1. User successfully logs in the account.

**Open Issues:** if the database fails to connect, the user may need to wait for days to connect.

**Authority:** User

#### **4.5.6 Use Case UC-6: User Profile Creation**

**Description:** This use case is about the successful creation of a user profile after providing valid profile details.

**Pre-Conditions:**

1. Users should have already been registered.
2. All must-required information about the user should be available in the database.
3. Databases should be available in online mode.

**Normal Flow:**

1. User enters valid required details for creating a profile.
2. User clicks on the create profile button.
3. System confirms and validates the data.
4. User successfully creates a profile.

**Alternative flow:**

- 1a. There is a problem with User's profile details.

- User provides required details when creating a profile.

- User continues from step 1.
- 3a. There is a problem in the data provided, some data needs to be corrected.
- User checks the available information and corrects the error.
  - User continues from step 3.
- 3b. There is a problem in the data validation. The data provided is not valid.
- User checks the validation of data and corrects the information.
  - User continues from step 3

**Post-Conditions:**

1. User successfully creates a profile.

**Open Issues:** if the database fails to connect, the user may need to wait for days to connect.

**Authority:** User

#### **4.5.7 Use Case UC-7: Take Personality Test**

**Description:** This use case is about taking a free personality assessment quiz provided by the application where the user will have to answer the questions based on his personality.

**Pre-Conditions:**

1. Users should have already been registered.

**Normal Flow:**

1. User clicks on the Personality Test button.
2. User opts for valid options based on its personality.
3. System assigns the user a personality type based on the algorithm.

**Alternative flow:**

- 2a. There is a problem in the data provided, some data needs to be corrected.
- User checks that he has chosen one of the available options.

- User continues from step 2.
- 3a. There is a problem while the system assigns the personality type.
- User checks that he has chosen valid options.
  - User continues from step 3

**Post-Conditions:**

1. User is assigned a personality type.

**Authority:** User

#### **4.5.8 Use Case UC-8: Add Preferences**

**Description:** This use case is about adding the preferences or we can say adding the requirements it wants in its partner.

**Pre-Conditions:**

1. Users should have already been registered.
2. User should have completed its own details (profile details).

**Normal Flow:**

1. User clicks on the preferences option.
2. User enters the required details in the preferences.

**Alternative flow:**

- 2a. There is a problem in the data provided while adding preferences, some data needs to be corrected.
- User checks that he has chosen one of the available options.
  - User continues from step 2.

**Post-Conditions:**

1. User's preferences are added and shown successfully.

**Authority:** User

#### 4.5.9 Use Case UC-9: View Profiles

**Description:** This use case is about viewing (read only) the Profiles data.

**Pre-Conditions:**

1. All must-required information about the profiles should be available.
2. Databases should be available in online mode.

**Normal Flow:**

1. User logs into the account.
2. User clicks on the View Profiles button.
3. System shows the updated information about the Profiles.

**Alternative flow:**

- 1a. There is a problem with the User login details.
  - The user can recover the password using the forgot password.
  - The user can again try to login.
  - User continues from step 1.

**Post-Conditions:**

1. Profiles data is shown successfully.

**Open Issues:** Profiles data cannot not be viewed if the admin does not upload the profile's details.

**Authority:** User

#### 4.5.10 Use Case UC-10: User Chats

**Description:** When the user has completed their profile, Matched profiles will be shown based on personality type and preferences. Then the user can chat with the matched profiles.

**Pre-Conditions:**

1. User must have completed his profile.

2. User must be a premium user.

**Normal Flow:**

1. User clicks on the matched profile he likes.
2. User presses the message button and sends a message.

**Alternative flow:**

- 2a. If not a premium user, he/she will buy a subscription first.

**Post-Conditions:**

1. The message will be sent and the user will have to wait for the response.

**Authority:** User

#### **4.5.11 Use Case UC-11: User Logout**

**Description:** This use case is about successfully logging out users.

**Pre-Conditions:**

1. Users must be logged in through valid login details.
2. Users must be able to perform all the required operations.
3. There must be an option to logout for Users.
4. Databases should be available in online mode.

**Normal Flow:**

1. User logs in the account.
2. System validates the data.
3. Users successfully log in to the account.
4. Users perform all the required operations.
5. Users click on the logout button.
6. System successfully logs out the user.

### Alternative flow:

2a. There is a problem with the user's login account.

- Users can recover passwords using forgot password.
- Users can again try to login.
- User continues from step 1

### Post-Conditions:

1. User successfully logs out of the system.

**Authority:** User

## 4.6 Architecture Diagram

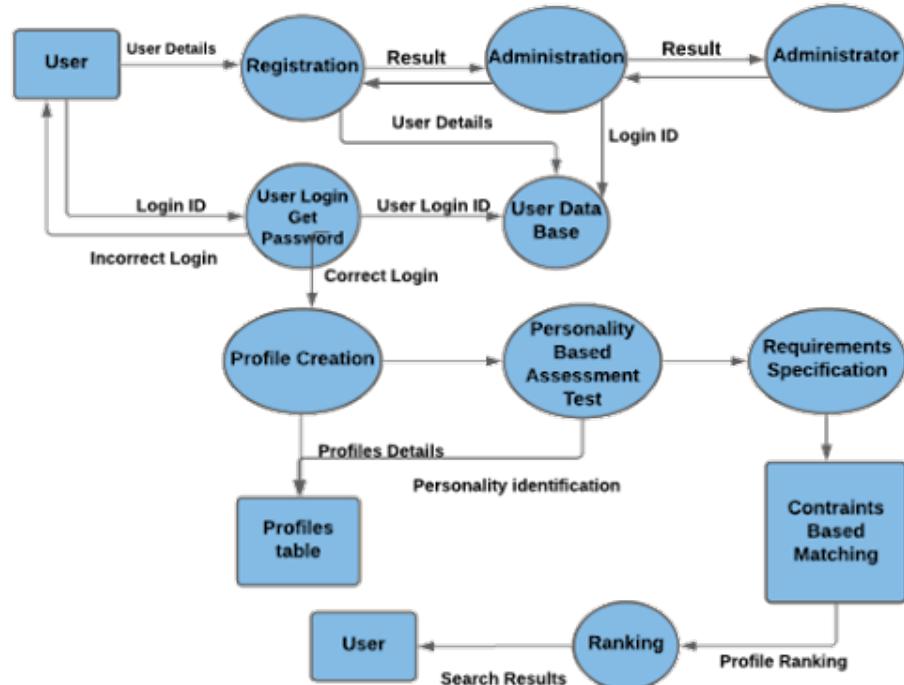


FIGURE 4.3: Architecture Diagram of Online Matrimonial Application

## 4.7 Entity Relationship Diagram

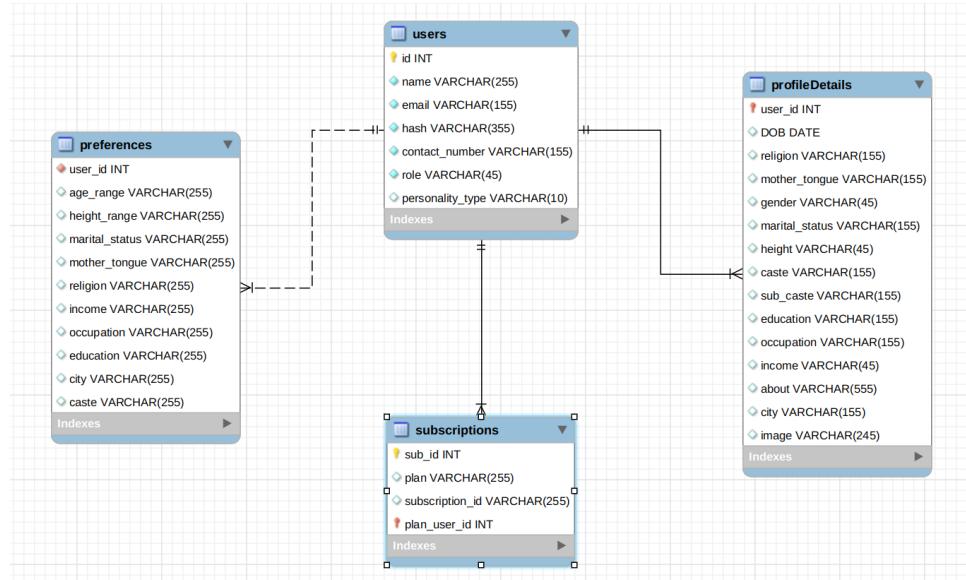


FIGURE 4.4: Entity Relationship diagram

## 4.8 Sequence Diagrams

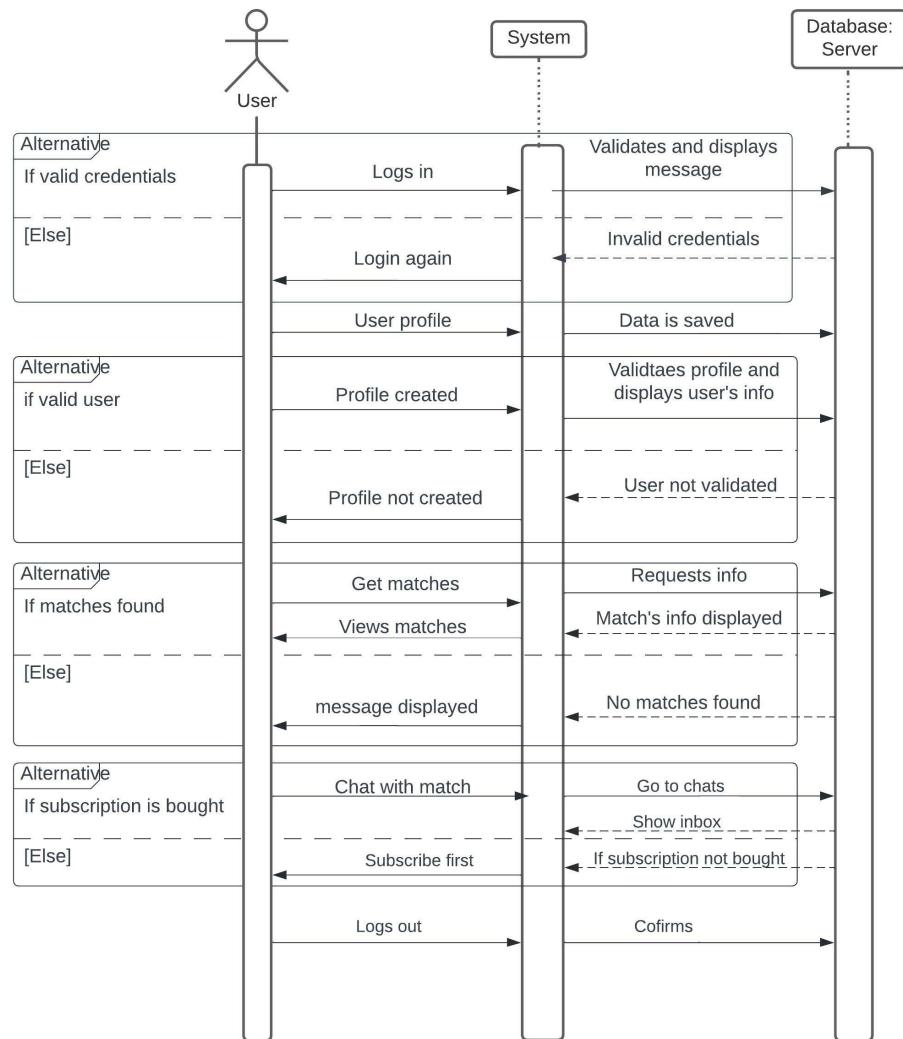


FIGURE 4.5: Sequence Diagram (User)

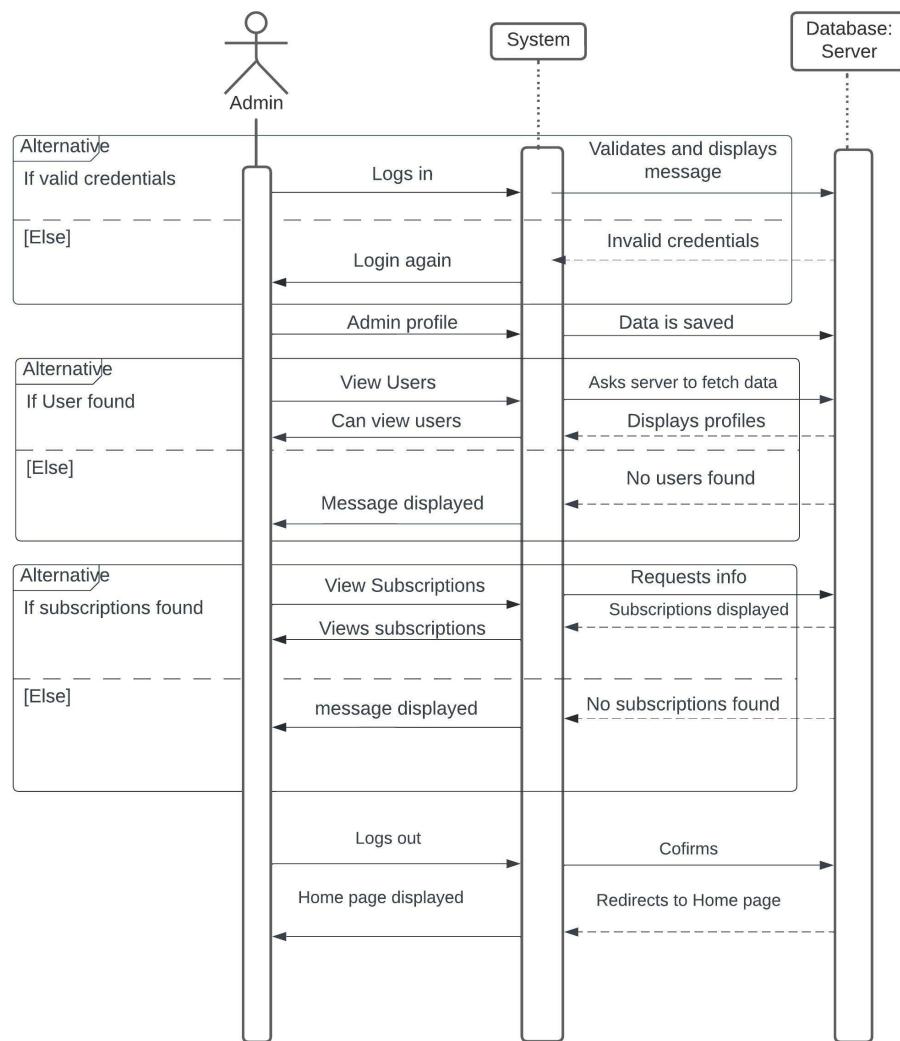


FIGURE 4.6: Sequence Diagram (Admin)

## 4.9 UML Diagram

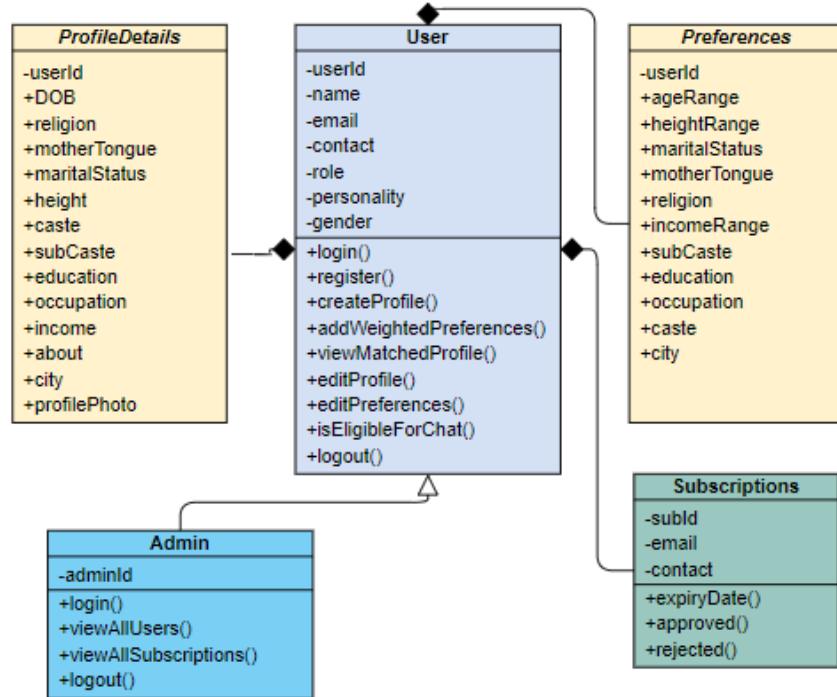


FIGURE 4.7: UML Diagram

# **Chapter 5**

## **Implementation Details**

### **5.1 Implementation Details**

The system consists of five major modules that is a profile face recognition system, a personality assessment test module, a personality correlation module, a ranking system, and a chat service. These are the main modules of our web application. The implementation detail of each of the following module is discussed in detail below.

### **5.2 Overall Project modular Structure**

This diagram shows how the modules are connected and represent the flow of the system. It represents the flow structure and the numbers of steps need to reach a specific module. The first module is profile verification for which user will have to start registering in the application. After the users have been verified that they are real users, they are carried to personality assessment module when they have provided the required personal and professional details and preferences details as well. They get a personality type in this module and then the flow goes to personality correlation page where they are checked and filtered for their compatible personality related attributes. Ultimately there is a ranking system which displays the suggested compatible matches with matching percentages. The user is facilitated with chat service if they buy a premium subscription of the system.

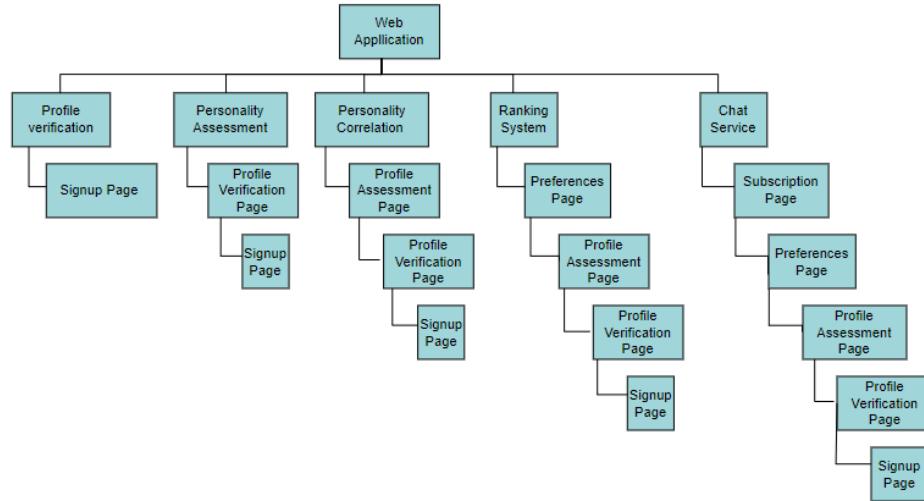


FIGURE 5.1: Overall project structure

## 5.3 Profile face recognition system

Facial recognition is a technique that is capable of matches faces with the digital images for the purpose to authenticate the users at run time. This module is required for the profile creation phase when the user tries to register in the application. The user can only fill in its profile details if its facial recognition is done. The facial recognition system is built in python using a face recognition library. The libraries used to build the module are mainly face recognition and cv2. This profile face recognition system works by firstly detecting and encoding the facial attribute in 128 encodings from the provided profile photo. And then this encoding is matched with the extracted features or encodings of the image clicked by a live web camera. If these features and encodings are matched, the profile image and the person registering for the application are the same, the system returns a true value and the user may continue filling its profile details.

### 5.3.1 Rules and assumptions

Following are rules and cases of assumptions that are assumed to be true while normal working:

- The user must provide its very own clear front-faced image for the profile.
- The user should be alone while clicking the photo in the web camera for better results and proper validation.

### 5.3.2 Tools and Technologies used

A list of all the software that is used to develop and needed to operate the developed module is detailed below:

**VS code:** It is a code environment in which all code for the module is written. This IDE is numerously used as a debugging tool and version control tool as well. **Libraries used:** Following external libraries are used while developing of the respective module:

- Face recognition: It is a python library that is used to automatically locate the face in an image. For our case, it is used to detect the face and encode it into 128 encodings.
- Cv2: It is an image processing library used to capture videos and get filtration formation as well. It is usually used in computer vision and image processing. For our case, it is used to capture facial details from a web camera and further its encoding is matched with the provided image. validation
- Numpy: It is a python library which is used to word with the arrays. The information of the encodings are saved in the numpy arrays.

## 5.4 Personality assessment test

As described in chapter 3, the personality assessment test is like a questionnaire provided to users so that their personality can be assessed for better matchmaking considering their personality traits as well. This assessment module is built using a decision tree in python. The questionnaire consists of a list of questions and each question contains answers on a scale of five of which the user will have to choose one of the answers which best suits their personality and attitude. The decision tree is a classification technique and it classifies and labels the personality types of the users based on the answers they provide and ultimately the user is assigned a personality type. Basically, the system is working in a flow where the user provides the answers and these answers are stored in four NumPy arrays. These four arrays are iterated in a loop and each iteration returns a personality character and its personality is identified from the four attributes (i.e., Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, Judging-Perceiving) of the MBTI personalities.[\[14\]](#)

### 5.4.1 Decision Tree Algorithm

- The personality assessment algorithm includes a decision tree whose model is trained using all the possible outcomes as -2, -1, 0, +1, +2 and model is

saved using pickle library. There is a list of questions in questionnaire, when the user attempts the questionnaire on the scale of 5, the whole record is stored in pythons Numpy arrays and based on the decision tree model, it is classified into four personality characters. These four characters are the output well predicted by the ML decision tree model. It evaluates these four MBTI personality characters not all by one but each time when the numpy array is iterated in the function, a corresponding character is obtained such as:

E in first iteration

S in second

T in third and

P in fourth.

So a personality type ESTP is obtained.

- **Root Node:** It includes all the population that is further divided into homogeneous sets as it is a multivalued tree.
- **Splitting:** This is the process of diving the node into sub-nodes based on its gini.
- **Decision Node:** It is what when a child node is further divided into its child nodes.
- **Leaf Node:** Leaf nodes are the potential outputs or the labels of the decision tree and in our case it provide a personality character output. It is replicate four times to get four MBTI personality characters which leads to an MBTI personality type.

### 5.4.2 Training Algorithm

```

train_data = pd.read_excel('dataset/DataSetAI.ods', sheet_name="Sheet1")

def splitdataset(train_data):
    X_train = train_data.iloc[:, :9]
    Y_train = train_data.iloc[:, 9:10]
    return X_train, Y_train

def train_using_gini(X_train, y_train):
    clf_gini = DecisionTreeClassifier(criterion = "gini",
                                      random_state = 100)

    clf_gini.fit(X_train, y_train)
    return clf_gini

X_train, Y_train = splitdataset(train_data)
clf_gini = train_using_gini(X_train, Y_train)

filename = 'dataset/finalized_model.sav'
pickle.dump(clf_gini, open(filename, 'wb'))

```

---

FIGURE 5.2: Training Model Algorithm

### 5.4.3 Prediction Algorithm

```

choiceLists = request.json
choiceLists = np.array(choiceLists)
resultList = []
for choice in choiceLists:
    test_data = [choice]

def prediction(X_test, clf_object):
    y_pred = clf_object.predict(X_test)
    return y_pred

filename = 'dataset/finalized_model.sav'
loaded_model = pickle.load(open(filename, 'rb'))

y_pred_gini = prediction(test_data, loaded_model)

resultList.append(y_pred_gini[0])

return [int(x) for x in resultList]

```

---

FIGURE 5.3: Prediction Model Algorithm

#### 5.4.4 Rules and assumptions

Following are rules and cases of assumptions that are assumed to be true while normal working:

- The user must provide answers which are actually related to their personality.

#### 5.4.5 Tools and Technologies used

A list of all the software that is used to develop and needed to operate the developed module is detailed below:

**VS code:** It is a code editor in which all code for the module is written. This IDE is numerously used as a debugging tool and version control as well.

**Libraries used:** Following libraries are used while developing the respective module:

- Sklearn: Sci-kit learn or Sklearn is a python library used for machine learning. In our case, ‘sklearn.tree’ is used to get a decision tree classifier which is further used to classify and label the user with the personality type based on the questionnaire.
- Pickle: It is a python library that is used to save the trained model so that it can be used conveniently.

### 5.5 Personality correlation

As discussed in chapter 3, after the personality type has been assigned to the user, then it comes to personality correlation where the user with some personality is correlated with its compatible matches. The personality types table is given in chapter 3 along with its compatible personalities and description of the personalities. This module is implemented through basic filtration control statements where only the compatible personality types are suggested to the user based on their personality types. The compatibility details on which the types are correlated are provided in chapter 3 in the section of introvert and extrovert compatibility table.

#### 5.5.1 Rules and assumptions

Following are rules and cases of assumptions that are assumed to be true while normal working of the system:

- The personality are correlated based on the assigned personality type. Faking responses may cause improper results.

### 5.5.2 Tools and Technologies used

A list of all the software that is used to develop and needed to operate the developed module is detailed below:

**VS Code:** It is a source code editor in which all code for the application is written. This IDE is numerously used as a debugging tool and version control as well. The implementation of the module is done using a JavaScript programming language.

## 5.6 Ranking system

This module is built to show a user compatible matches of suggestions based on the percentage obtained from physical as well as personality-related parameters. The ranking system will show the suggestions in descending order percentage from the most suited profile to the least suited profile. The module is implemented by prioritizing the profile firstly through filtering the profiles to the opposite gender, then by personality compatibility, and ultimately by physical parameters and priority based preferences constraints. These constraints are satisfied by giving these preferences some points and calculating the proportion. This system is responsible for suggesting the compatible profiles to the user not only on physical parameters but also on personality attributes as well which was one of the main goals to achieve in the system.

### 5.6.1 Rules and assumptions

Following are rules and cases of assumptions that are assumed to be true while normal working:

- The user may not like the most ranked profile due, so it may go for other compatible matches.

### 5.6.2 Tools and Technologies used

A list of all the software that is used to develop and needed to operate the developed module is detailed below:

**VS Code:** Code environment in which all code for the application is written. This IDE is numerously used as a debugging tool and version control as well. All implementation is done in javascript.

## 5.7 Chat service

If the user wants to send a message to its compatible matches, it must have a premium subscription to get a chat facility. The chat service is using Firebase as a back end application to store messages and does the hidden job done for us conveniently. The messages are appeared their at real time so Firebase was supposed to be the best option to use in the implementation of the system.

### 5.7.1 Rules and assumptions

Following are rules and cases of assumptions that are assumed to be true while normal working:

- The user must buy a premium subscription to get a chat facility.
- The user must abide by the chat rules and regulations and should not exceed limitations.

### 5.7.2 Tools and Technologies used

A list of all the software that is used to develop and needed to operate the developed module is detailed below:

**VS Code:** Code environment in which all code for the application is written. This IDE is numerously used as a debugging tool and version control as well.

**Firebase:** Firebase is a tool that allows in-app messaging. Chat modules require real-time message storage so firebase is the best software which is used to implement this module.

## 5.8 Web Application

The project is a web application that is a platform where people who are looking to get married can avail a great matchmaking experience. This excellent matchmaking is possible through considering both physical and psychological parameters.

### 5.8.1 Main Page

Here is the main page of the web application. The user can navigate to different pages from this main page. Many further details are provided here as well like testimonials, promises, and many more to make the landing page attractive and to make user comfortable with the user interface and experience.

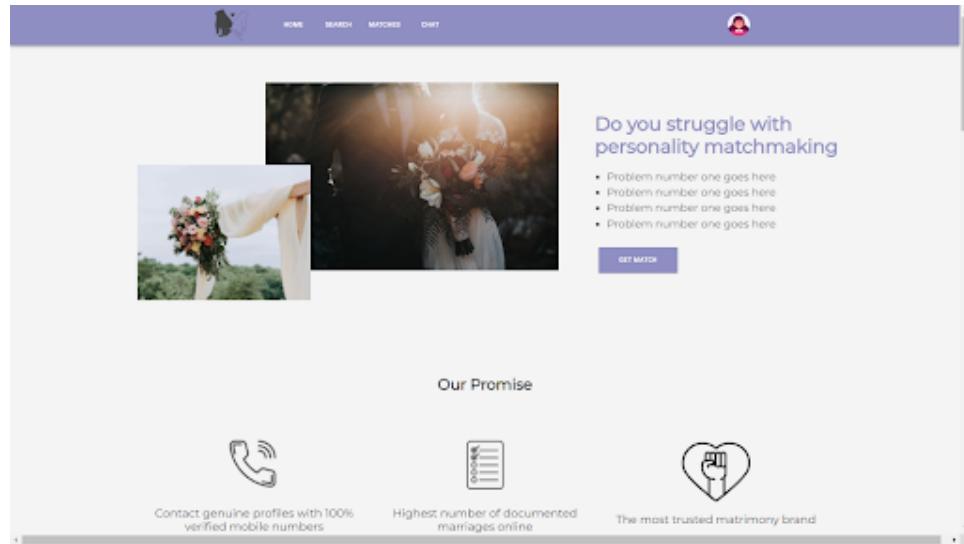


FIGURE 5.4: Landing Page

### 5.8.2 Sign Up Page

The user enters all information required to access the system's functionality. After entering the information, the user clicks the register button. Once the user has been registered, they will go through further profile creation process. Signing up in the application is the part of the registration process in which user will have to fill in all the required fields.

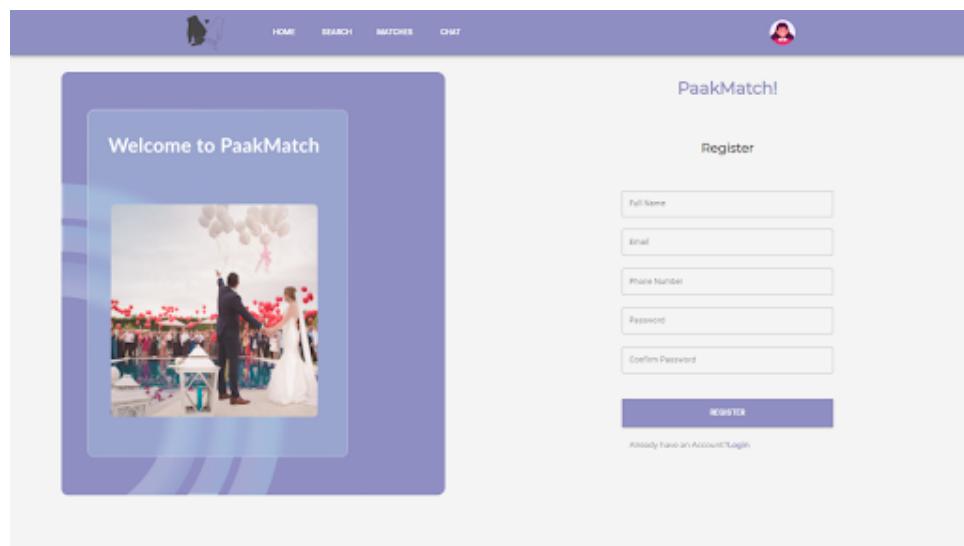


FIGURE 5.5: Registration Page

### 5.8.3 Login Page

After the registration request is approved and the user is done with the profile creation process. The user can access the login page by clicking the login button on the home page whenever they want to enter the system. The user enters the login information, email and password, to log in to the system. The user can login at any time in the system by proving the valid credentials to the system.

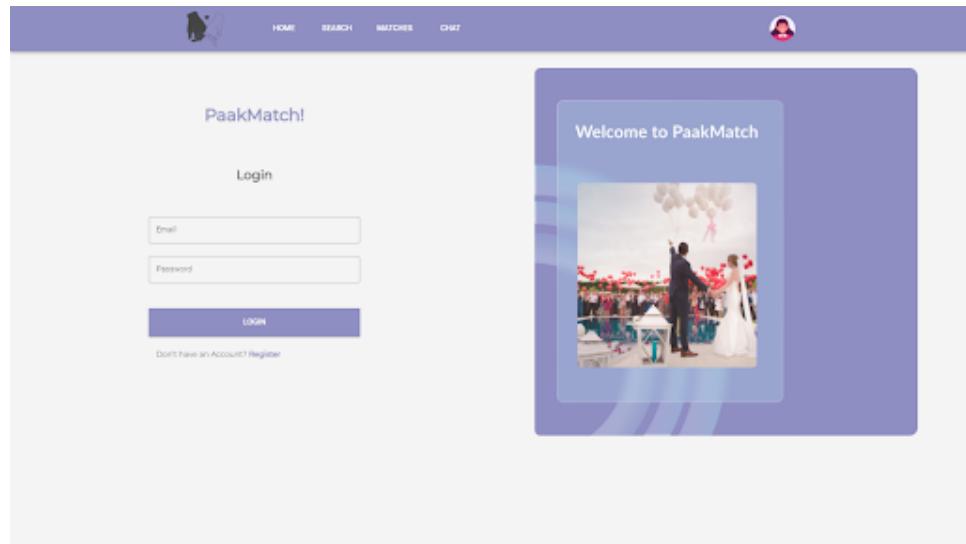
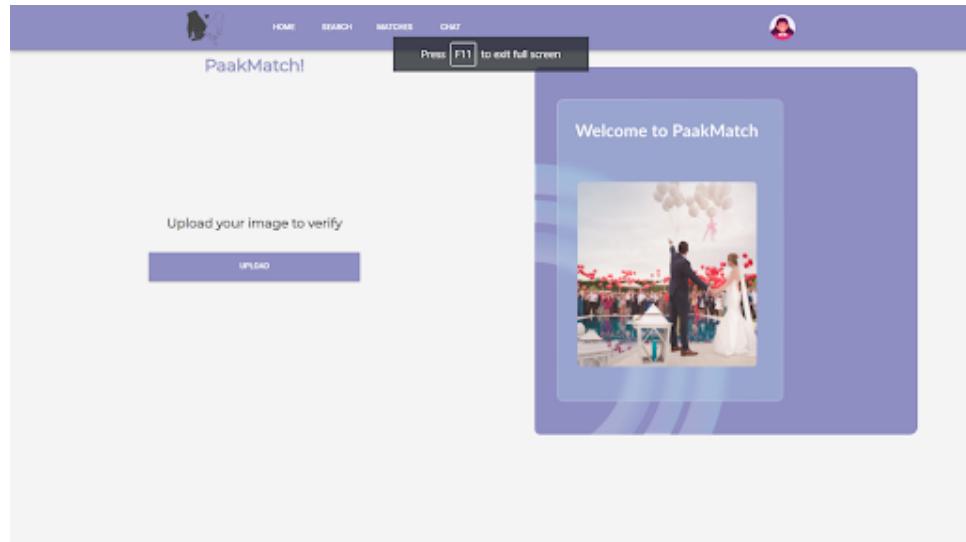


FIGURE 5.6: Login Page

### 5.8.4 Profile verification page

As the internal working has been described in the relative module of the chapter. This page appears When the user has been registered itself, then they are carried to the profile verification page where it is checked whether the user is real or not (i.e., the person creating the profile is the same or the profile is being created with his consent or not). This profile facial recognition system works by first detecting faces and extracting features from webcams. These features are then matched to the facial features in the image provided in the profile. The user need to appear in front of the web cam when he has provided the profile image to the system. The web camera matches the user's face with that specific profile picture. The user will have to appear in front of web camera with clear front face to get its profile approved for profile creation otherwise it will not be able to complete its profile.



---

FIGURE 5.7: Facial Recognition Page

### 5.8.5 Profile Creation page

After the user has validated its profile through face recognition module, then the user is taken to profile creation page where it enters all the required information which includes personal details, basic details, caste details, occupation and salary details, and ultimately a bio. This can be seen in the image provided below.

A screenshot of the "CREATE YOUR PROFILE" page. The page is divided into three main sections: "Basic Information", "Personal Details", and "Caste Details".

- Basic Information:** Fields include "City" (dropdown menu), "Date of Birth" (date input field), "Religion" (dropdown menu), and "Mother Tongue" (dropdown menu).
- Personal Details:** Fields include "Gender" (dropdown menu), "Marital Status" (dropdown menu), and "Height" (dropdown menu).
- Caste Details:** A single field labeled "Caste" with a dropdown menu.

---

FIGURE 5.8: Profile Creation Page

### 5.8.6 Preferences page

This page is also similar to the profile creation page but here the user need to enter it partners preferences it want. The user needs to enter the preferences details after the user has provided their own details. The user will be able to assign select the priority of each preference to further refine the match. These are the details that needs to be added for the ranking system to apply constraints based on physical parameters.

The screenshot shows a 'Partner Preferences' section with the following details:

Preference	Value	Weightage
Age Range	20-25	20%
Height Range	50-55 in inch	100%
Marital Status	Marital Status	20%
Mother Tongue	Mother Tongue	30%
Religion	Religion	40%
Income	Income	50%
Occupation	Occupation	10%

Below the table, there is a note: 'Turn on "Compulsory" to get matches exactly as per your preferences.'

FIGURE 5.9: Preferences Page

### 5.8.7 Personality assessment page

After providing all the necessary detail in profile creation and preferences pages, the user attempts the questionnaire for the personality assessment and assess the personality that is to be used for personality compatibility in the personality correlation module and further in the ranking profile system.

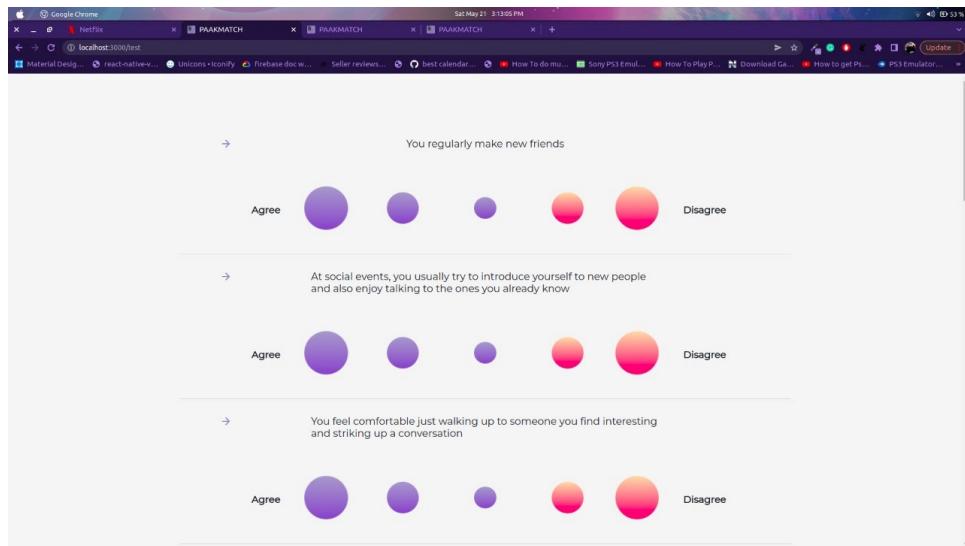
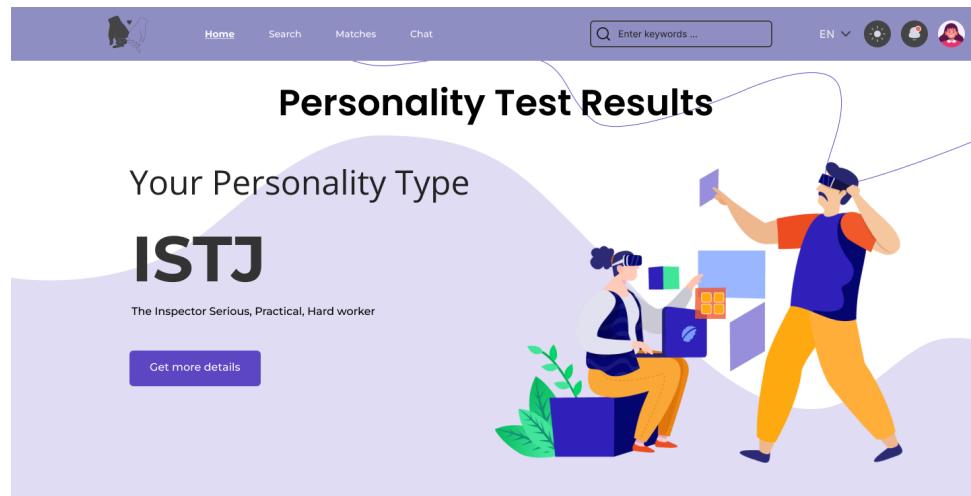


FIGURE 5.10: Personality Assessment Page

### 5.8.8 Personality assessment Results page

This page contains information about user's personality type along with the description of the personality type and personality characters.



#### Explanation of:

I	Introverts are inward-turning and tend to be thought-oriented, enjoy deep and meaningful social interactions, and feel recharged after spending time alone.
S	People who prefer sensing tend to pay a great deal of attention to reality, particularly to what they can learn from their own senses. They tend to focus on facts and details and enjoy getting hands-on experience.
T	They tend to be consistent, logical, and impersonal when weighing a decision.
J	They seek closure from the outer world through order, planning, and organization. When possible, they prefer for things to be settled and crossed off their list. They may want to find work that allows them to set goals, be organized, and make decisions

FIGURE 5.11: Personality Assessment result Page

### 5.8.9 Home page

This is the home page where the user can see their own details such as personality type and profile picture and can navigate to wherever it wants such as es where it can see the compatible matches, edit preferences page where the user can edit the preferences and edit profile page where the user can edit their own profile.

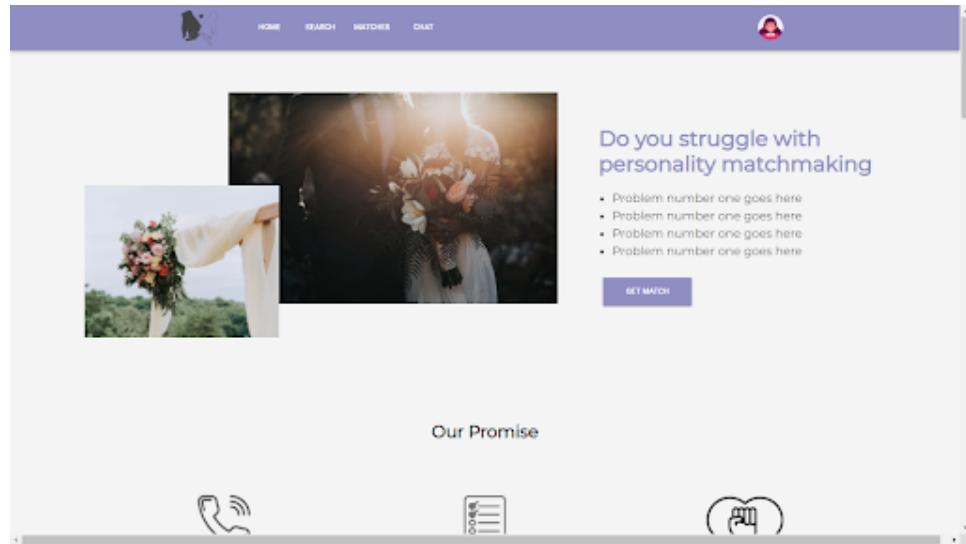


FIGURE 5.12: Home Page

### 5.8.10 Self Profile Page

The user can click on profile icon or image to navigate to this page. This page contains information of the user including personal details (age, status, location, religion etc) and bio. The user can also navigate to personality section in this page to see personality details.

The screenshot shows a user profile page. At the top, there is a large circular profile picture of a woman with dark hair, resting her chin on her hand. To the right of the profile picture is a large, vibrant bouquet of flowers in shades of pink, white, and green. Below the profile picture, the name "Jane Doe" is displayed in bold black text, followed by the title "Junior UI/UX Design". Underneath this, there are several profile details: "Karachi, Pakistan" with a location pin icon, "Female" with a gender icon, and the date "1998-02-03". To the right of these details is a "My Profile" section with a purple header labeled "BIO". The bio text reads: "I have my Bachelor's Degree in Computer Science I am looking for a life partner who matches my personality and help me support my dreams. I want to go abroad for higher studies and I am Looking for a job right now in a software house." A small upward arrow icon is located at the bottom right of this section. Below this is a "More Detail" section with a purple header. It includes tabs for "About me" and "Personality". Under "About me", there is a table of personal information:

Religion	Islam	
Mother tongue	Punjabi	
Status	Single	
Hieght	5'6"	
Caste	Arain	
Education	BSCS	
Occupation	UI\UX	
Income	Sideburns	

Below the "About me" table, there are two smaller profile pictures: one of the woman from the top and another smaller one below it.

FIGURE 5.13: Self Profile Page

### 5.8.11 Matches page

The user can navigate to the profile page by just clicking on the profile photo where they can see the profile details of the clicked profile. This page comes right after the personality ranking is done and the potential matches are shown here. The user can navigate to home, edit preferences page where the user can edit the preferences and edit profile page where the user can edit their own profile from the matches page.

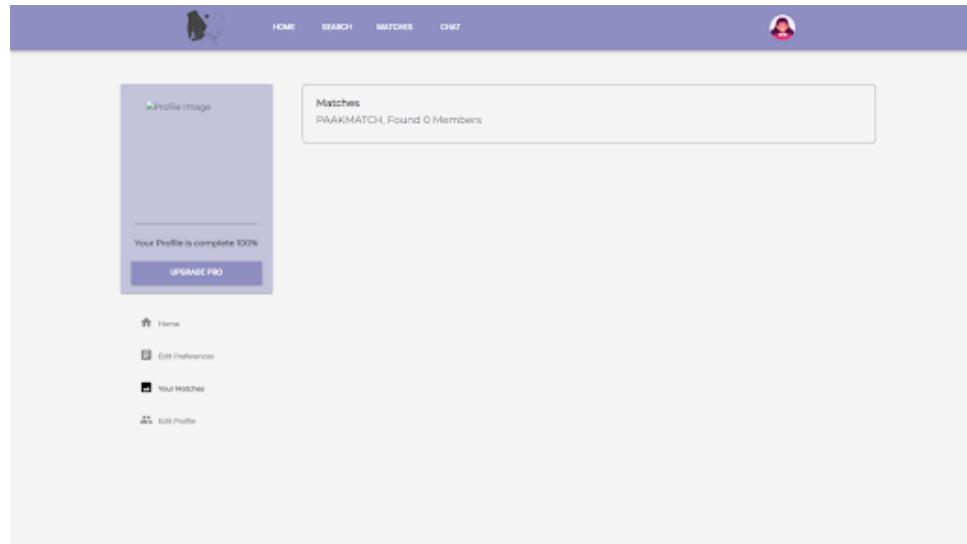


FIGURE 5.14: Matches Page

### 5.8.12 Chat page

If the user want to send a message to the compatible matches, the user can get the chat functionality as well if they have a subscription to the system. This is a paid service which can filter the user like those who are serious would be willing to buy the subscription of the system.

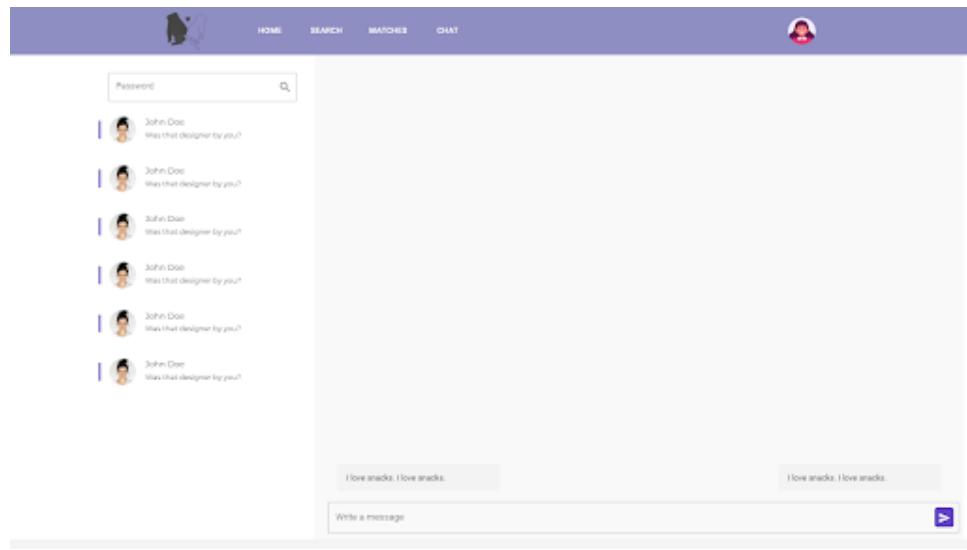
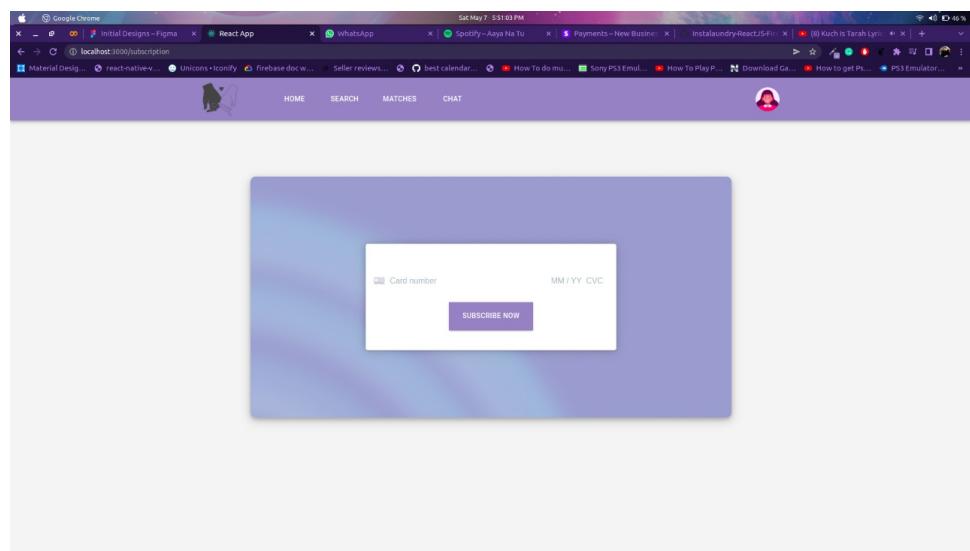


FIGURE 5.15: Chat Page

### 5.8.13 Subscription page

If the user want to send a message to the compatible matches, the user can get the chat functionality as well if they have a subscription to the system. This is a paid service which can filter the user like those who are serious would be willing to buy the subscription of the system. If the user has got subscription already, it will directly be taken to the chat page otherwise it will to buy subscription to chat with the compatible matches,



---

FIGURE 5.16: Subscription Page

### 5.8.14 All users admin page

This is the first screen of admin panel where the admin can see all the registered users. The admin can provide credentials in login page to see all registered users.

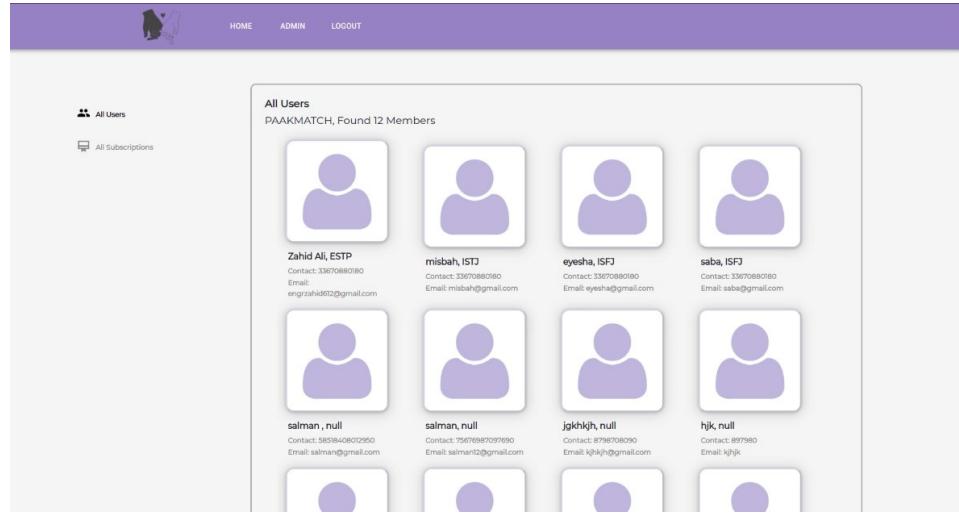


FIGURE 5.17: All users admin page

### 5.8.15 All subscriptions admin page

This is the second screen of admin panel where the admin can see all the users who have got the subscription. The admin can provide credentials in login page to see all the users who have got subscriptions.

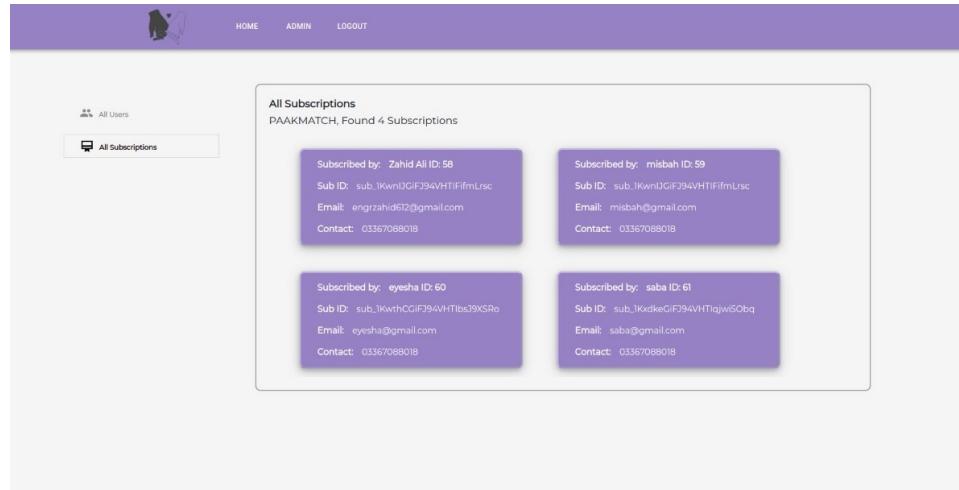


FIGURE 5.18: All subscriptions admin page

## 5.9 Technology Stack

TABLE 5.1: Technology Stack

Technology	Descripiton
<b>ReactJS</b>	It is a lightweight library of javascript for frontend design.
<b>NodeJS</b>	Node JS is a javascript runtime environment used for backend.
<b>ExpressJS</b>	It is an open source for node js used to integrate frontend and backend.
<b>Redux</b>	It is a predictable state container designed to help write JavaScript apps that behave consistently across client, server, and native environments.
<b>Python</b>	It is an interpreted, high-level general-purpose programming language.
<b>Flask</b>	It is a small and lightweight Python web framework for back-end that provides useful tools and features that make creating web applications easier.
<b>Firebase</b>	It is a Google-backed application development software that enables developers to develop iOS, Android and Web apps

# Chapter 6

## Evaluation Criteria

### 6.1 Web Application

#### 6.1.1 Test Scenario TS-1: User Registration Functionality

Post-Conditions:

1. User is successfully registered and approved by admin.

TABLE 6.1: Web Application: Test Scenario TS-1 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Enter all valid credentials	Successful registration and “successfully registered” message displayed.	Successful registration and “successfully registered” message displayed.	Abdul Samad	Pass
TC-2	Enter invalid name	Register button disabled	Register button disabled	Abdul Samad	Pass
TC-3	Enter invalid email	Register button disabled	Register button disabled	Abdul Samad	Pass

TC-4	Enter invalid password	Register button disabled	Register button disabled	Abdul Samad	Pass
TC-5	Enter invalid phone number	Register button disabled	Register button disabled	Abdul Samad	Pass

### 6.1.2 Test Scenario TS-2: User Login Functionality

**Pre-Conditions:**

1. User is already registered and approved by admin.
2. User is identified and authenticated.

**Post-Conditions:**

1. User is successfully logged in to the system.

TABLE 6.2: Web Application: Test Scenario TS-2 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Enter all valid credentials	Successful log in and “Login Successful” message displayed.	Successful log in and “Login Successful” message displayed.	Shayan Mukhtar	Pass
TC-2	Enter invalid email	Login button disabled	Login button disabled	Shayan Mukhtar	Pass
TC-3	Enter invalid password	Login button disabled	Login button disabled	Shayan Mukhtar	Pass

### 6.1.3 Test Scenario TS-3: User Verification

**Pre-Conditions:**

1. Webcam is working properly
2. Users' image is captured successfully
3. Image is not blurred or full face is shown

**Post-Conditions:**

1. User is verified successfully and upon verification user is directed to profile creation page

TABLE 6.3: Web Application: Test Scenario TS-3 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Image is not captured clearly (is blurred/ face is hidden)	Verify button is disabled	Verify button is disabled	Abdul Samad	Pass
TC-2	Image is captured successfully	“Uploaded Successfully” message is displayed to user. And user is directed to profile creation page.	“Uploaded Successfully” message is displayed to user. And user is directed to profile creation page.	Abdul Samad	Pass

#### 6.1.4 Test Scenario TS-4: User Profile Creation

**Pre-Conditions:**

1. User has been registered successfully
2. User has been verified by admin
3. User has entered valid details

**Post-Conditions:**

1. User is directed to preferences page

TABLE 6.4: Web Application: Test Scenario TS-4 Results

<b>Test Case ID</b>	<b>Description</b>	<b>Expected Result</b>	<b>Actual Result</b>	<b>Executed By</b>	<b>Status</b>
TC-1	Enter all valid details	Submitted successfully and user is directed to preferences page	Submitted successfully and user is directed to preferences page	Shayan Mukhtar	Pass
TC-2	Enter invalid full name	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-3	Enter invalid date of birth	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-4	Religion isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-5	Mother tongue isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-6	Enter invalid email	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-7	Enter invalid phone number	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-8	Gender isn't specified	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass

TC-9	Marital status isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-10	Height isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-11	Caste isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-12	Subcaste isn't specified	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-13	Education isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-14	Occupation isn't selected	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-15	Income isn't specified	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass
TC-16	About You field isn't filled	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass

### 6.1.5 Test Scenario TS-5: User's Preferences

#### Pre-Conditions:

1. User has been registered successfully
2. User has been verified by admin
3. User has provided information required in profile creation page
4. User has entered valid details

#### Post-Conditions:

1. User is directed to personality assessment page

TABLE 6.5: Web Application: Test Scenario TS-5 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Enter all valid details	Submitted successfully and user is directed to preferences page	Submitted successfully and user is directed to preferences page	Abdul Samad	Pass
TC-2	Age of bride/-groom isn't specified or is not valid	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-3	Height of bride/groom isn't specified or is not valid	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-4	Marital Status isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-5	Mother tongue isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-6	Religion isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-7	Income isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-8	Profession isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
TC-9	Location isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass

TC-10	Education isn't specified	Submit button disabled	Submit button disabled	Abdul Samad	Pass
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### 6.1.6 Test Scenario TS-6: Users' Personality Assessment

**Pre-Conditions:**

1. User has been registered successfully
2. User has been verified by admin
3. User has provided information required in preferences page

**Post-Conditions:**

1. Upon completion of personality assessment test, user's personality type is added to his/her profile and profile is created successfully.

TABLE 6.6: Web Application: Test Scenario TS-6 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Choose options provided for all the questions	Upon submission, personality type is shown to user and profile is created successfully.	Upon submission, personality type is shown to user and profile is created successfully.	Shayan Mukhtar	Pass
TC-2	Choose options for only some questions	Submit button disabled	Submit button disabled	Shayan Mukhtar	Pass

### 6.1.7 Test Scenario TS-7: View User Profile

**Pre-Conditions:**

1. User has been registered successfully
2. User has been verified by admin
3. User's profile has been created successfully

**Post-Conditions:**

1. Users can view details mentioned in their profile.

TABLE 6.7: Web Application: Test Scenario TS-7 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	View user's profile	Details about user are shown	Details about user are shown	Abdul Samad	Pass

### 6.1.8 Test Scenario TS-8: Matches Page functionalities

**Pre-Conditions:**

1. User has been registered successfully
2. User has been verified by admin
3. User's profile has been created successfully

**Post-Conditions:**

1. Users can view matched profiles according to their rankings on matches' page.

TABLE 6.8: Web Application: Test Scenario TS-8 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
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TC-1	User can view other users' profile by clicking on profile picture.	Other users' profile with details is shown.	Other users' profile with details is shown.	Shayan Mukhtar	Pass
TC-2	Upgrade to pro	User can view and buy subscription packages	User can view and buy subscription packages	Shayan Mukhtar	Pass
TC-3	Editing preferences	User should be directed to preferences page where he/she can edit preferences	User should be directed to preferences page where he/she can edit preferences	Shayan Mukhtar	Pass
TC-4	Viewing matches	By clicking on your matches, users should be able to see all the matches	By clicking on your matches, users is able to see all the matches	Shayan Mukhtar	Pass
TC-5	Editing Profile	Users should be directed to profile creation page where they can edit their details	Users are directed to profile creation page where they can edit their details	Shayan Mukhtar	Pass

TC-6	Settings	Users should be able to view their account settings page	Users are able to view their account settings page	Shayan Mukhtar	Pass
TC-7	View Home Page	By clicking home tab in navbar user should be navigated to home page	By clicking home tab in navbar user is navigated to home page	Shayan Mukhtar	Pass
TC-8	Viewing Matches	User should be able to view profiles of all matched users	User is able to view profiles of all matched users	Shayan Mukhtar	Pass
TC-9	Viewing Chats	After clicking on chats tab in navbar, user should be able to view chats with other users	After clicking on chats tab in navbar, user should be able to view chats with other users	Shayan Mukhtar	Pass

TC-10	Select Language	User can select language by clicking on language tab in navbar	User can select language by clicking on language tab in navbar	Shayan Mukhtar	Pass
TC-11	View Notification	User should be able to view notifications by clicking on notifications icon in navbar	User is able to view notifications by clicking on notifications icon in navbar	Shayan Mukhtar	Pass
TC-12	Enter email or subscribe	User should be able to subscribe and message “Subscribed successfully” is shown	User is able to subscribe and message “Subscribed successfully” is shown	Shayan Mukhtar	Pass
TC-13	View About Us Page	User should be able to view about us page	User is able to view about us page	Shayan Mukhtar	Pass

### 6.1.9 Test Scenario TS-9: View Matched User's Profile

Pre-Conditions:

1. User has been registered successfully
2. User has been verified by admin
3. User's profile has been created successfully
4. User clicks on profile picture of matched user

**Post-Conditions:**

1. Users can view profile of matched user along with details

TABLE 6.9: Web Application: Test Scenario TS-9 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	Messaging matched users	Users should be able to initiate conversation with another user after clicking message button only if they have bought subscription otherwise, they are directed to subscription page	Users is able to initiate conversation with another user after clicking message button only if they have bought subscription otherwise, they are directed to subscription page	Abdul Samad	Pass

TC-2	View Face-book Page	User should be able to view Facebook page	User is able to view Face-book page	Abdul Samad	Pass
TC-3	View Insta-gram Page	User should be directed to Instagram page	User is able directed to Instagram page	Abdul Samad	Pass
TC-4	View Linked in Page	User should be able to view linked in page	User can view linked in page	Abdul Samad	Pass
TC-5	View Privacy Policy	User can view privacy terms and conditions by clicking on privacy policy	User can view privacy terms and conditions by clicking on privacy policy	Abdul Samad	Pass
TC-6	View Contact Details	User should be able to view contact information	User can view contact information	Abdul Samad	Pass

### 6.1.10 Test Scenario TS-10: View Chats

#### Pre-Conditions:

1. User has been registered successfully
2. User has been verified by admin

3. User's profile has been created successfully
4. User has premium subscription

**Post-Conditions:**

1. User is able view chat and send messages.

TABLE 6.10: Web Application: Test Scenario TS-9 Results

Test Case ID	Description	Expected Result	Actual Result	Executed By	Status
TC-1	View chats in inbox	Users should be able to view all chats in inbox and send messages	Users can view all chats in inbox and send messages	Shayan Mukhtar	Pass

# **Chapter 7**

## **Future Work**

The main goal for the future of our Matrimonial Web Application is to give superior matchmaking services to grooms and brides. In order to do so, we will look at the available options and resources. To achieve our purpose, we have established a matchmaking service that will appeal to millions of individuals globally. This service will gain worldwide appreciation.

A new user can register on the Matrimonial Web Application and obtain an email confirmation. After successful registration, other users can view the user's profile.

To improve its members' overall experience and make it easier to discover a suitable partner based on their chosen criteria. We have also improved our behavior-based customisation to increase user engagement on our platform.[\[15\]](#)

The mission of the Matrimonial Web Application is to provide assistance to Grooms and Brides in investigating the opportunities and resources that are available to find a partner who is truly suitable for them. The marriage website could help a great number of brides and grooms find the mates who are best suited to them. A few examples of subfields include "Partner search" and "Registration." to pique the interest of both the Bride and the Groom in developing a relationship that is compatible with one another.

It's possible that the bride or groom will conduct a personal search for a life partner based on their requirements. Through the use of this service, the couple will be able to receive direct email alerts for potential matches who satisfy the parameters that they have specified. For instance, it offers profiles of prospective brides and grooms, in addition to other information that may be found on the internet about them. Users of online dating services are able to modify their choices for prospective partners. Using this program, you may create an album,

show other users that you're interested in them, and send them personal messages. This tool is appealing to artificial intelligence because of its capacity to connect people based on personal interests, education, language, employment, family, and lifestyle.

We are going to keep working on this problem that spans multiple disciplines. Because these five characteristics of personality are not entirely orthogonal to one another, it is possible that we should examine a correlation between them in order to make the entire system more effective. Learning from multiple perspectives would be beneficial for our training algorithm. While this is going on, one of the things that piques our curiosity is the degree to which an individual's offline and online behaviors are similar. Despite the fact that there are certain differences in user behavior between online and offline environments, the current tendency in the development of networking technology is toward creating a virtual world that resembles the natural world. Even if you have to use your real name to register for most online services, there is no substitute for face-to-face interaction. Users do not need to be concerned about losing face, which is something that is highly valued in the natural world. We feel that there is a slight behavioral difference between meetings that take place online and those that take place in person.[\[16\]](#)

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