White Box Testing

For each of our white box sets we decided to analyze one algorithm that we created for our KeaMatch Page. All pseudo code in this file is compatible with code2flow website.

Set 1

Default Algorithm

Source Code:

Both Algorithms expect User Model as a parameter, this model comes from Front-end and represents data from filled out form.

```
 public Dictionary<UserModel, int> DefaultAlgorithm(UserModel MatchSeeker)
        {
             //Potential Matches will be used in second Part of algorithm
             //result list servers as return object for frontend-storing the user and
percentage of "How good of a match they are for one another"- we wil call this number Match
Index
             //User Dummies are all curently registered users in our app
             List<UserModel> PotentialMatches = new List<UserModel>();
             Dictionary<UserModel, int> result = new Dictionary<UserModel, int>();
             List<UserModel> AllUsers = new UserDummies().GetUserDummies();

            int MatchSeekerAge = MatchSeeker.Age;


            foreach (var RegisteredUser in AllUsers)
            {
                var UserYear = RegisteredUser.Age;

                //if they are same age
                if (MatchSeekerAge == UserYear)
                {
                    //add user with 50% Match Index
                    result.Add(RegisteredUser, 50);

                    //add user to list for futher evaluation
```

```
                PotentialMatches.Add(RegisteredUser);
            }
            else
            {
               //add user with 0% Match Index
                result.Add(RegisteredUser, 0);
            }

        }
        //if they match on age- check if they match on hobbies
        foreach (var NarrowedDownUser in PotentialMatches)
        {
            if (MatchSeeker.Hobby!=null)
            {
                var MatchSeekerHobbies = MatchSeeker.Hobby.Split(",");
                var Userhobbies = NarrowedDownUser.Hobby.Split(',');
           bool haveSharedHobbies = MatchSeekerHobbies.Intersect(Userhobbies).Count() > 0;
                if (haveSharedHobbies)
                {
                    //the user is allready in result so we just change his Match Index
                    result[NarrowedDownUser]=100;


                }
            }
        }
        return result;
    }
```

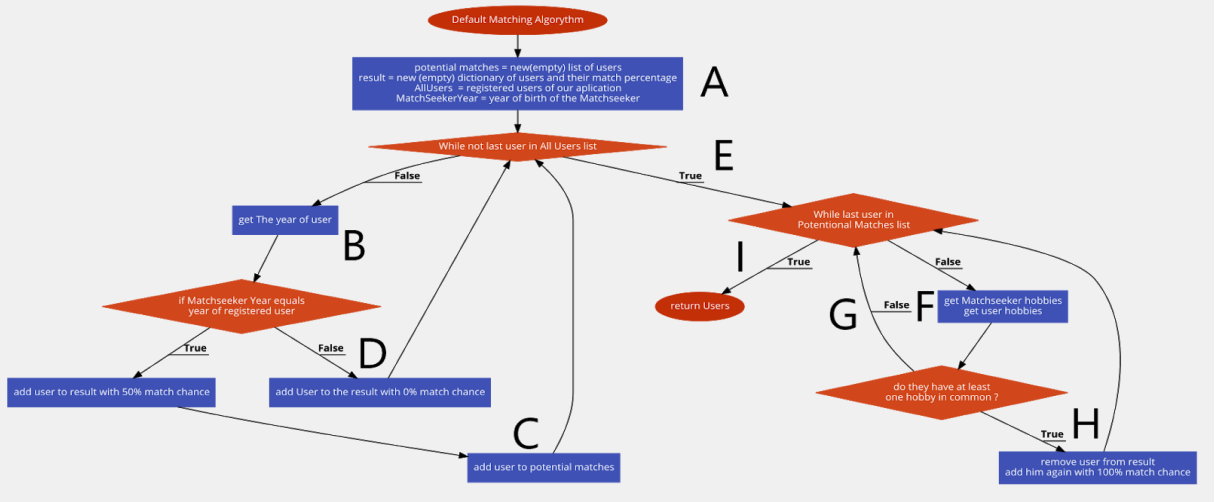
Pseudo Code:

Default Matching Algorithm;
potential matches = new(empty) list of users
result = new (empty) dictionary of users and their match percentage
AllUsers = registered users of our aplication
MatchSeekerYear = year of birth of the Matchseeker;
before_check:

if(While not last user in All Users list){goto Second_loop;}
get The year of user;
if(if Matchseeker Year equals
year of registered user)

```
{
 add user to result with 50% match chance;
 add user to potential matches;
}
else{add User to the result with 0% match chance; }
  loop before_check;


Second_loop:
second_check:

if(While last user in
Potentional Matches list){ goto end }
get Matchseeker hobbies
get user hobbies;
if( do they have at least
one hobby in common ?)
{
   remove user from result
   add him again with 100% match chance;
  }

   goto second_check

end:
return return Users
```

Flow Chart:



If you have trouble viewing this image, you can look at the original [here]

Minimal Paths for

100% Statement Coverage	100% Decision Coverage
A,B,D,E,F,G,I	A,B,C,B,D,E,F,H,F,G,I

Set 2

Advanced Algorithm

Source Code:

```
public Dictionary<UserModel, int> AdvancedAlgorithm(UserModel
MatchSeeker)
        {
            //result list servers as return object for frontend-storing
the user and percentage of
            //"How good of a match they are for one another"- we wil
call this number Match Index
            //Lists for matches on different values are created
            //User Dummies are all curently registered user in our app
            Dictionary<UserModel, int> result = new
Dictionary<UserModel, int>();
            List<UserModel> SameGenderMatches = new List<UserModel>();
            List<UserModel> SameHeightMatches = new List<UserModel>();
            List<UserModel> SameSignMatches = new List<UserModel>();

            List<UserModel> AllUsers = new
UserDummies().GetUserDummies();

            foreach (var RegisteredUser in AllUsers)
            {

                if (RegisteredUser.Gender==MatchSeeker.Gender)
                {
                    SameGenderMatches.Add(RegisteredUser);
                }
                if(RegisteredUser.Height==MatchSeeker.Height)
```

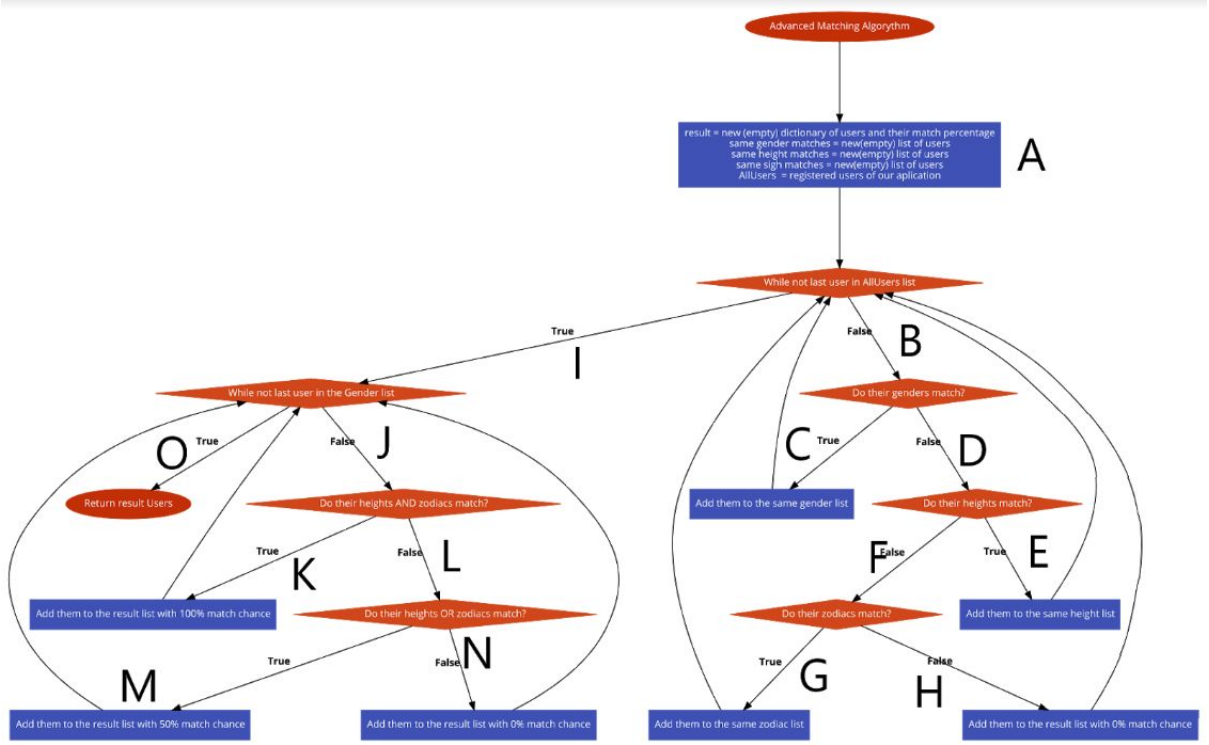
```
                {
                    SameHeightMatches.Add(RegisteredUser);
                }
                if (RegisteredUser.Zodiac == MatchSeeker.Zodiac)
                {
                    SameSignMatches.Add(RegisteredUser);
                }
                else
                {
                    //If both the matchseeker and user don't match
gender
                    //add user to the result with 0 match index
                    result.Add(RegisteredUser, 0);
                }
            }
            //We wil use gender interest as a main factor in this
algorithm
            foreach (var match in SameGenderMatches)
            {

                bool isInHeightMatches =
SameHeightMatches.Contains(match);
                bool isInzodiacMatches =
SameSignMatches.Contains(match);
                //lets check if they match on all values
                //otherwise check if they match at least on one value
                if (isInHeightMatches&&isInzodiacMatches)
                {
                    result.Add(match, 100);
                }
                else if (isInHeightMatches || isInzodiacMatches)
                {
                    //if the user is allready in the list change his
Match Index
                    if (result.ContainsKey(match))
                    {
                        result[match] = 50;

                    }
                    else
                    {
                        result.Add(match, 50);
                    }
                }
            }
```

```
            return result;
        }
```

Pseudo Code:

```
Advanced Matching Algorithm;
result = new (empty) dictionary of users and their match percentage
same gender matches = new(empty) list of users
same height matches = new(empty) list of users
same sigh matches = new(empty) list of users
AllUsers  = registered users of our aplication
{
  first_check:

  if(While not last user in AllUsers list)
    {
    Second_loop:
    second_check:

      if(While not last user in the Gender list){ goto end1 }
      else if(Do their heights AND zodiacs match?)
        Add them to the result list with 100% match chance;
      else if(Do their heights OR zodiacs match?)
        Add them to the result list with 50% match chance;
      else
        Add them to the result list with 0% match chance;
      goto second_check
      end1:
      return Return result Users;
    }
  else if(Do their genders match?)
    Add them to the same gender list;
  else if(Do their heights match?)
    Add them to the same height list;
  else if(Do their zodiacs match?)
    Add them to the same zodiac list;
  else
    Add them to the result list with 0% match chance;
  goto first_check
}
```

Flow Chart:



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