# Functional Point analysis:

We have chosen the functional point analysis for cost/effort estimation as it provides the most flexibility in changing requirements hence changing the overall plan. In the FP estimation method we can easily change the complexity weight as well as the count of any function and other metrics can be easily and automatically recalculated to reflect the changes.

The complexity selected for each function is marked in blue.

| | Function Category | Count | Complexity | | | Count x Complexity |
|---|---|---|---|---|---|---|
| | | | Simple | Average | Complex | |
| 1 | Number of user input | 14 | 3 | 4 | 6 | 42 |
| 2 | Number of user output | 10 | 4 | 5 | 7 | 50 |
| 3 | Number of user queries | 7 | 3 | 4 | 6 | 42 |
| 4 | Number of data files and relational tables | 4 | 7 | 10 | 15 | 28 |
| 5 | Number of external interfaces | 1 | 5 | 7 | 10 | 7 |

User input: Inputs include profile section such as account information, creation, and mingling, for potential matches multiple inputs in the form of location, response, requesting, accepting, and messaging.

User output: Includes profile information, mingling status, locations, matches, incoming requests, incoming chats, and compatibility score.

Queries: Includes account creation, compatibility, matches, location search, mingle request, account updating, searching users.

Data Storage: Profile data, Messages, Map data and Mingling data.

External: Maps

Count x Complexity is the product of a function count and the selected complexity for it.

The GFP is then the sum of each of the Count x Complexity.

GFP  = 42 + 50 + 42 + 28 + 7

= 169

Next step is to calculate the PCA

| | |
|---|---|
| 1 | 3 |
| 2 | 4 |
| 3 | 3 |
| 4 | 3 |
| 5 | 3 |
| 6 | 4 |
| 7 | 3 |
| 8 | 2 |
| 9 | 3 |
| 10 | 3 |
| 11 | 3 |
| 12 | 3 |
| 13 | 1 |
| 14 | 5 |
| Total: | 43 |

PCA = 0.65 + 0.01(43)

$\qquad$ = 1.08

Now using the PCA we can calculate the FP.

FP $\quad$ = GFP x PCA

$\qquad$ = 169* 1.08

$\qquad$ ~ 183

The estimated effort can be calculated as,

(Productivity is assumed as 40 per week)

E = FP / Productivity

= 183/40

= 4.6

Team Size is assumed to be 4.

Duration is estimated as,

D = E / Team Size

= 4.6 / 3

= 1.5

~ 1.5 weeks

Answer: An estimated 1.5 weeks of effort will be required to build the software when a team size of 3 is chosen.

Software that will be required to develop this software would include a collaborative IDE, a design tool, and a Version Control System.

- For a Collaborative design tool Intellij IDEA can be used which can cost nearly $600 per developer per year so $600 * 3 = $1800.
- For a Design tool would be $10 per month so for 3 developers for less than a month will be = $30.
- The free version of GIT and hosting it on Github will be more than sufficient for the purposes

Total Cost: $1800 + $30 = $1830.