1. Appendix1 Task Effort Estimation

1.1 Task Effort Estimation Method

The task estimation is proceeded by Pert Formula. The detailed steps and estimation of task effort are as below

1. Assemble project team in one room
2. Develop task list
3. Each person individually estimates the most likely, an optimistic and a pessimistic task duration for one person doing the job full-time (40 hours/week, 52 weeks/year).
4. Estimates are displayed to the team
5. Each person discusses their assumptions and issues they considered
6. Individuals adjust their estimates based on the discussion
7. Outliers are discarded
8. Averages are calculated
9. T=(a+4m+b)/6: T is expected time; a is optimistic time estimate; m is the most likely time estimate; b is the pessimistic time estimate.

1.2 Duration and Resources Estimation

From the table below, we could clearly see the duration and resource estimation, inter-relations of the task.

SN	Task	Effort (Staff-Days)	Staff Number	Duration (Days)	Precedence	
T1	Planning	14	4	3.5	0	
T2	Staffing	0.2	2	0.2	T1	
T3	Project Scope	1.5	3	0.5	T2	
T4	Architecture	1	2	0.5	T3	
T5	Requirement	12	3	4	T4	
T6	Iteration 1	3	3	1	T5	Software design and Coding
T7	Iteration 2	3	3	1	T6	

T8	Iteration 3	3	3	1	T7	
T9	Testing 1	2	4	0.5	T6	Unit,integration and quality-in-use testing
T10	Testing 2	2	4	0.5	T7	
T11	Testing 3	2	4	0.5	T8	
T12	Rework1	3	3	1	T9	
T13	Rework2	3	3	1	T10	
T14	Rework3	3	3	1	T11	
T15	Release-PC version	4	8	0.5	T14	
T16	Iteration 4	3	3	1	T15	Software design and Coding
T17	Iteration 5	3	3	1	T16	
T18	Iteration 6	3	3	1	T17	
T19	Testing 4	2	4	0.5	T16	Unit,integration and quality-in-use testing
T20	Testing 5	2	4	0.5	T17	
T21	Testing 6	2	4	0.5	T18	
T22	Rework4	3	3	1	T19	
T23	Rework5	3	3	1	T20	
T24	Rework6	3	3	1	T21	
T25	Release-Mobile version	4	8	0.5	T24	
T26	Iteration 7	3	3	1	T25	Software design and Coding
T27	Iteration 8	3	3	1	T26	
T28	Iteration 9	3	3	1	T27	
T29	Testing 7	2	4	0.5	T26	Unit,integration and quality-in-use testing
T30	Testing 8	2	4	0.5	T27	
T31	Testing 9	2	4	0.5	T28	
T32	Rework7	3	3	1	T29	
T33	Rework8	3	3	1	T30	
T34	Rework9	3	3	1	T31	
T35	Release-AI version	4	8	0.5	T34	T34\T36\T37\T38
T36	Documentation	18	3	6	T1	
T37	Risk1 anti-measure	25.2	9	2.8	T1	
T38	Risk2 anti-measure	27	9	3	T1	

2. Appendix2 Pert Chart of Critical Path

Activity	Earliest start(ES)	Latest start(LS)	Earliest finish(EF)	Latest finish(LF)	Float	Critical path
T1	0	0	3.5	3.5	0	yes
T2	3.5	3.5	3.7	3.7	0	yes
T3	3.7	3.7	4.2	4.2	0	yes
T4	4.2	4.2	4.7	4.7	0	yes
T5	4.7	4.7	8.7	8.7	0	yes
T6	8.7	8.7	9.7	9.7	0	yes
T7	9.7	9.7	10.7	10.7	0	yes
T8	10.7	10.7	11.7	11.7	0	yes
T9	9.7	11.7	10.2	12.2	2	no
T10	10.7	11.7	11.2	12.2	1	no
T11	11.7	11.7	12.2	12.2	0	yes
T12	10.2	12.2	11.2	13.2	2	no
T13	11.2	12.2	12.2	13.2	1	no
T14	12.2	12.2	13.2	13.2	0	yes
T15	13.2	13.2	13.7	13.7	0	yes
T16	13.7	13.7	14.7	14.7	0	yes
T17	14.7	14.7	15.7	15.7	0	yes
T18	15.7	15.7	16.7	16.7	0	yes
T19	14.7	16.7	15.2	17.2	2	no
T20	15.7	16.7	16.2	17.2	1	no
T21	16.7	16.7	17.2	17.2	0	yes
T22	15.2	17.2	16.2	18.2	2	no
T23	16.2	17.2	17.2	18.2	1	no
T24	17.2	17.2	18.2	18.2	0	yes
T25	18.2	18.2	18.7	18.7	0	yes
T26	18.7	18.7	19.7	19.7	0	yes
T27	19.7	19.7	20.7	20.7	0	yes
T28	20.7	20.7	21.7	21.7	0	yes
T29	19.7	21.7	20.2	22.2	2	no
T30	20.7	21.7	21.2	22.2	1	no
T31	21.7	21.7	22.2	22.2	0	yes
T32	20.2	22.2	21.2	23.2	2	no
T33	21.2	22.2	22.2	23.2	1	no
T34	22.2	22.2	23.2	23.2	0	yes
T35	23.2	23.2	23.7	23.7	0	yes
T36	3.5	17.2	9.5	23.2	13.7	no

T37	3.5	20.4	6.3	23.2	16.9	no
T38	3.5	20.2	6.5	23.2	16.7	no

3. Appendix3 Roughly Requirement Analysis

This section roughly analyzes the requirements of TTT project and priority of requirements.

Features	Requirement Description	Business Value(High, Medium, Low)	Cost(High, Medium, Low)	Risk(High, Medium, Low)
F1	Advanced Function(AI)	High	Low	High
F2	Portability	Medium	Low	High
F3	Basic Function	Medium	Medium	Low
F4	View : GUI	Medium	Low	Low