***Extra task 1. Input data:***

*Project duration: 1 year*

*Average manual testing cost: 30 man hrs per week*

*Automated tests development cost:*

*- Framework Setup + CI configuration = 80man/hours*

*- Scenarios Implementation: 40 man hours per week (4 months)*

*- Tests Support: 2man hrs per week (1year)*

*- Automated test execution & result analysis: 4 man-hours per week (1 year)*

***Extra task 2. Input data:***

Project duration: 2 years

Average manual testing cost: 20 man hrs per week

Automated tests development cost:

- Framework Setup + CI configuration = 120man/hours

- Scenarios Implementation: 40 man hours per week (8 months)

- Tests Support: 4man hrs per week (16 months)

- Automated test execution & result analysis: 8 man-hours per week (2 years)

**Extra task 1:**

Project 1 year

Manual testing cost: 30 man-hour per week \* 1 year \* 52 weeks = 1560 man-hours

Automated tests development cost: (80 man-hours setup framework) + (40 man-hours per week scenario development \* 0.3 year \* 52) + (2 man-hour per week tests support \* 1 year \* 52 weeks) = 808 man-hours

Automated test execution & result analyzis: 4 man-hours per week \* 1 year \* 52 = 208 man-hours

ROI = (1560-(808+208))/(808+208) ~ 0.40 ~ 40%

**Extra task 2:**

Project 2 years

Manual testing cost: 20 man-hour per week \* 2 year \* 52 weeks = 2080 man-hours

Automated tests development cost: (120 man-hours setup framework, CI conf) + (40 man-hours per week scenario development \* 0.65 year \* 52) + (4 man-hour per week \* 1.3 year \* 52 weeks) = 1742 man-hours

Automated test execution & result analyzis: 8 man-hours per week \* 2 year \* 52 = 832 man-hours

ROI = (2080-(1742+832))/(1742+832) ~ - 0.19 ~ - 19%

Conclusion:

1. Automation is profitable in first case
2. It better to use manual only testing on the second project as automation is not profitable.