**Machine Learning to predict the credit worthiness (“good” or “bad”) of loan applicants.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Accuracy** | **Precision** | **Recall** | **F1-Score** | **Support** | **AUC** |
| **Logistic Regression** | 0.73 | 0.70 | 0.73 | 0.70 | 300 | 0.746748691382 |
| **LinearSVC** | 0.75 | 0.73 | 0.75 | 0.72 | 300 | 0.748676190476 |
| **Decision Tree** | 0.71 | 0.69 | 0.71 | 0.70 | 300 | 0.700097134531 |
| **Random Forest** | 0.71 | 0.50 | 0.71 | 0.59 | 300 | 0.746775673196 |
| **MLPClassifier** | 0.72 | 0.70 | 0.72 | 0.71 | 300 | 0.730289784685 |

**Feature Ranking: (with Pre-processing)**

Feature ranking:

**1. feature checking\_status (0.299473)**

**2. feature credit\_history (0.253363)**

**3. feature savings\_status (0.056199)**

**4. feature employment (0.050651)**

**5. feature job (0.048430)**

6. feature purpose\_'domestic appliance' (0.045793)

7. feature purpose\_'new car' (0.040876)

8. feature purpose\_'used car' (0.035692)

9. feature purpose\_business (0.032977)

10. feature purpose\_education (0.027847)

11. feature purpose\_furniture/equipment (0.027443)

12. feature purpose\_other (0.027177)

13. feature purpose\_radio/tv (0.025222)

14. feature purpose\_repairs (0.022589)

15. feature purpose\_retraining (0.004771)

16. feature personal\_status\_'female div/dep/mar' (0.001494)

17. feature personal\_status\_'male div/sep' (0.000000)

18. feature personal\_status\_'male mar/wid' (0.000000)

19. feature personal\_status\_'male single' (0.000000)

20. feature other\_parties\_'co applicant' (0.000000)

21. feature other\_parties\_guarantor (0.000000)

22. feature other\_parties\_none (0.000000)

23. feature property\_magnitude\_'life insurance' (0.000000)

24. feature property\_magnitude\_'no known property' (0.000000)

25. feature property\_magnitude\_'real estate' (0.000000)

26. feature property\_magnitude\_car (0.000000)

27. feature other\_payment\_plans\_bank (0.000000)

28. feature other\_payment\_plans\_none (0.000000)

29. feature other\_payment\_plans\_stores (0.000000)

30. feature housing\_'for free' (0.000000)

31. feature housing\_own (0.000000)

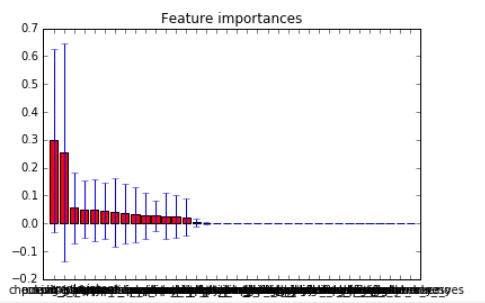
32. feature housing\_rent (0.000000)

33. feature own\_telephone\_none (0.000000)

34. feature own\_telephone\_yes (0.000000)

35. feature foreign\_worker\_no (0.000000)

36. feature foreign\_worker\_yes (0.000000)



**Feature Ranking: (without Pre-processing)**

**1. feature checking\_status (0.137962)**

**2. feature credit\_history (0.090873)**

**3. feature purpose (0.078223)**

**4. feature savings\_status (0.077632)**

**5. feature employment (0.076176)**

6. feature installment\_commitment (0.071339)

7. feature personal\_status (0.070415)

8. feature other\_parties (0.070127)

9. feature residence\_since (0.063511)

10. feature property\_magnitude (0.063084)

11. feature other\_payment\_plans (0.048531)

12. feature housing (0.043538)

13. feature existing\_credits (0.040969)

14. feature job (0.030621)

15. feature num\_dependents (0.026710)

16. feature own\_telephone (0.010288)

17. feature foreign\_worker (0.000000)

