

Titan Bank LOS Analysis

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(On behalf of Ventures International Consulting)

Background

- Titan Bank changed their Loan Origination System (LOS) from “Bonus” to “Extreme”.
- Titan Bank wants to compare the two systems.
- Ventures International Consulting is selected by Titan bank to explore the data, answer the management questions and develop a dashboard.

Dataset Introduction

- Data collected from Titan Bank's Datamart
- Total Number of Rows: 2950
- Total Number of Columns : 31
- Number of Sales Teams:13
- Each row represents one loan application
- Loan Purpose: Purchasing of house, Refinancing of Loan, Construction(House remodeling)

DB Record #	Sales Team	Accou	Loan Amt	Processor	Application Date	Lock Expiration	Appraisal Date Ordere	Appraisal Date Receive	Estimated Fund Dat	Last Rate Lock Reque	Appraisal Due Dat	Month Fun	Product	Loan Status
1110	Team 2	7014	756,547	P5	03/14/18	5/14/2018	03/16/18	04/23/18	05/04/18	03/14/18	03/30/18	May 18	OA7	In Closing
1400	Team 2	7246	2,458,200	P6	03/19/18	5/18/2018	03/22/18	04/05/18	05/09/18	03/19/18	04/04/18	May 18	OA1	In Closing
1508	Team 2	1825	530,200	P16	04/13/18	6/12/2018	04/16/18	04/24/18	05/11/18	04/13/18	04/23/18	May 18	/1M	In Closing
992	Team 9	1710	1,523,120	P19	03/01/18	5/14/2018	03/02/18	03/28/18	05/03/18	03/01/18	03/16/18	May 18	OA7	In Closing
1243	Team 9	6148	537,912	P19	03/30/18	5/29/2018	04/18/18	04/18/18	05/07/18	03/30/18		May 18	OA1	In Closing
1398	Team 3	9464	831,450	P23	04/09/18	6/18/2018	04/10/18	04/17/18	05/09/18	04/17/18	04/16/18	May 18	ORW	In Closing
1799	Team 2	1298	171,069	P29	02/28/18	5/7/2018	03/01/18	03/07/18	05/16/18	03/07/18	03/12/18	May 18	B30	In Closing
1102	Team 2	2148	428,980	P45	03/01/18	5/1/2018	03/02/18	03/19/18	05/04/18	03/02/18	03/16/18	May 18	RWT	In Closing
1388	Team 2	1270	990,992	P45	04/12/18	6/11/2018	04/12/18	04/23/18	05/09/18	04/12/18	04/18/18	May 18	RWT	In Closing
1489	Team 2	8953	279,560	P45	04/09/18	6/8/2018	04/06/18	04/13/18	05/10/18	04/09/18		May 18	OBI	In Closing
1112	Team 8	1859	436,788	P55	03/22/18	5/21/2018	04/04/18	04/19/18	05/04/18	03/22/18	04/18/18	May 18	OFN	In Closing
1220	Team 8	2840	674,800	P55	03/23/18	5/22/2018	04/02/18	04/16/18	05/07/18	03/23/18	04/16/18	May 18	OIN	In Closing

Data Preprocessing

- Some the columns are removed as not needed for current analysis such as Account number, Loan Amt, Lock Expiration, Month Fund, Product, etc.
- 2301 rows removed based on following condition:
 - where loan status is “Approved “
 - loan status is “In Review”
- After cleanup, we are left with **649 rows, 14 columns**
- A new column is added ‘Total Days’ (= Estimated Fund Date - Application Date)
- A new column is added ‘Closing Days’ (=Total Days - Days to Process – 2)

Analytics for Business Management

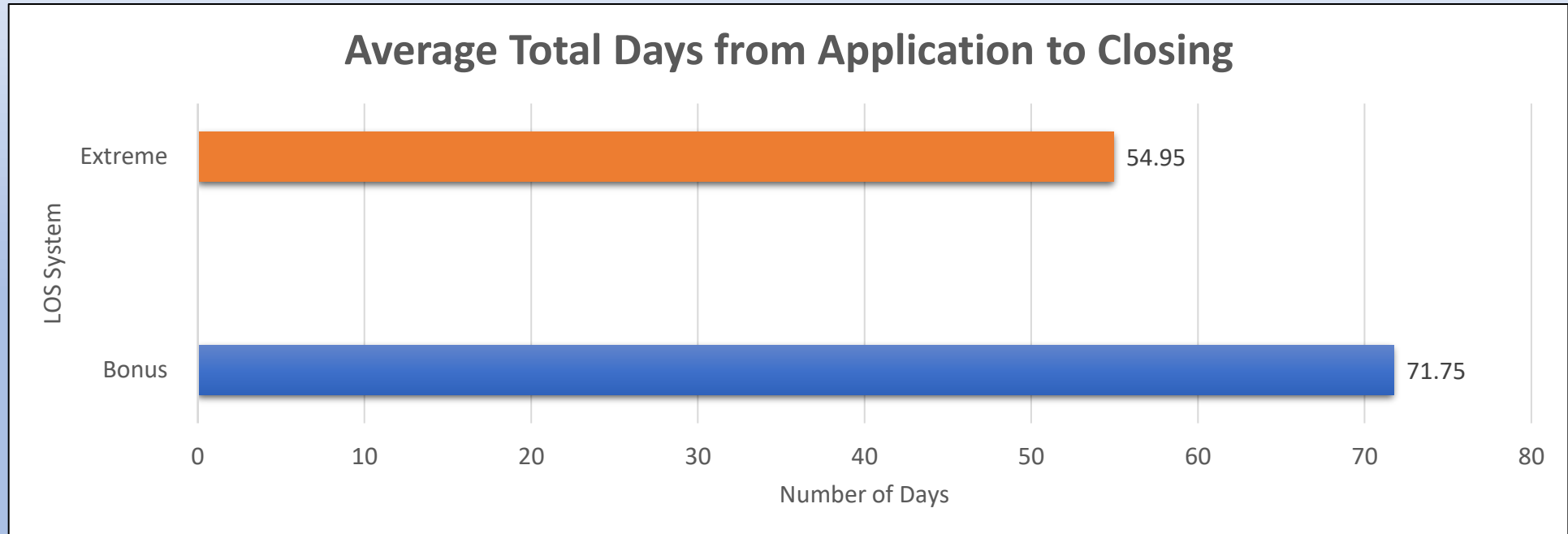
This section addresses questions raised by VP of Business Management

Outliers

Outlier for "Bonus" LOS System (-39<Total Days<179)											
DB Record #	Sales Team	Processor	Application Date	Appraisal Date Ordered	Appraisal Date Received	Closing Date	Appraisal Due Date	Purpose	Days to Process	Closing Time	Total Days
270	Team 4	P103	10/25/2017		11/3/2017	4/26/2018		Purchase	37	144	183
323	Team 5	P7	6/9/2017	6/14/2017	7/10/2017	4/27/2018		ConstPerm	297	23	322
219	Team 11	P73	2/23/2017	2/23/2017	3/24/2017	4/26/2018		Refi	259	166	427
Outlier for "Extreme" LOS System(-21<Total Days<131)											
DB Record #	Sales Team	Processor	Application Date	Appraisal Date Ordered	Appraisal Date Received	Closing Date	Appraisal Due Date	Purpose	Days to Process	Closing Time	Total Days
1477	Team 1	P78	12/4/2017	12/7/2017	12/21/2017	5/10/2018	12/19/2017	Refi	137	18	157
2616	Team 12	P64	1/12/2018	1/16/2018	2/20/2018	5/31/2018	2/16/2018	Purchase	60	77	139
259	Team 6	P49	12/15/2017	1/12/2018	1/24/2018	4/26/2018	1/15/2018	Refi	110	20	132
923	Team 4	P22	9/1/2017	9/7/2017	9/26/2017	5/2/2018	9/20/2017	Purchase	235	6	243
137	Team 6	P90	8/8/2017	1/24/2018	1/31/2018	4/23/2018	1/31/2018	Purchase	216	40	258
334	Team 12	P100	12/8/2017	12/8/2017	12/26/2017	4/27/2018	12/22/2017	Refi	32	106	140
197	Team 6	P52	11/3/2017	11/13/2017	12/1/2017	4/25/2018	12/1/2017	Refi	147	24	173
70	Team 6	P95	11/16/2017	12/20/2017	12/20/2017	4/16/2018	12/18/2017	Refi	139	10	151

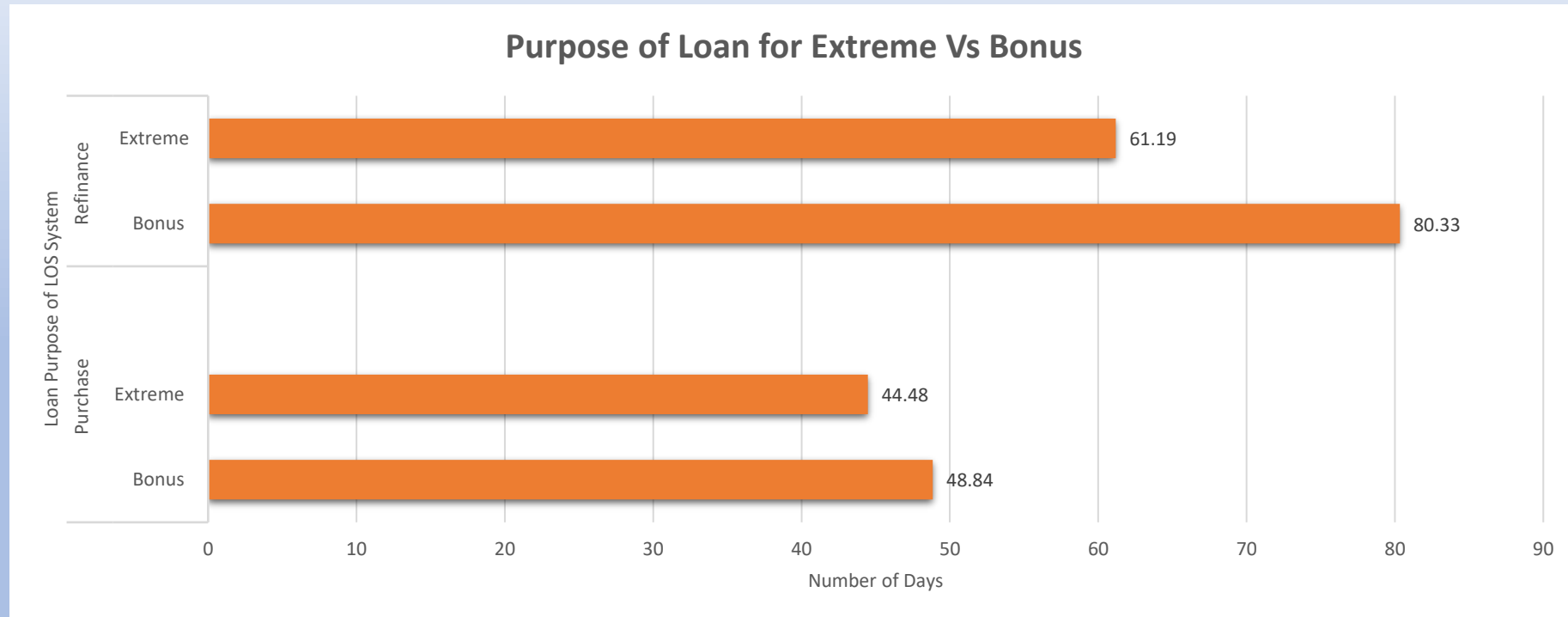
These outliers are removed from the further analysis for Business Management.

Is using “Extreme” faster vs “Bonus”?



Use of “Extreme” results in faster processing of loan applications overall.

Is using “Extreme” faster vs “Bonus”?



Use of “Extreme” results in faster processing of loan applications for both types of loan purpose

Cost Savings using Extreme vs Bonus

	Average Cost (in USD)		Savings (in USD)
	Bonus	Extreme	
Processor	11,518	9,599	1,919
Closer	3,463	2,078	1,385
Total	14,981	11,677	\$3,304

On average, use of “Extreme” LOS system leads to cost savings of \$3,304 per loan application

Data Issues

Duplicate Data

DB Record #	Sales Team	Processor	Application Date	Appraisal Date Ordered	Appraisal Date Received	Estimated Fund Date	Appraisal Due Date	Loan Status	LOS System	Purpose	Days to Process	Closer	Type
312	Team 2	P101	02/02/18	02/06/18	02/22/18	04/27/18		In Closing	Bonus	Refi	42	C4	Conv
314	Team 2	P101	02/02/18	02/07/18	02/21/18	04/27/18		In Closing	Bonus	Refi	42	C4	Conv

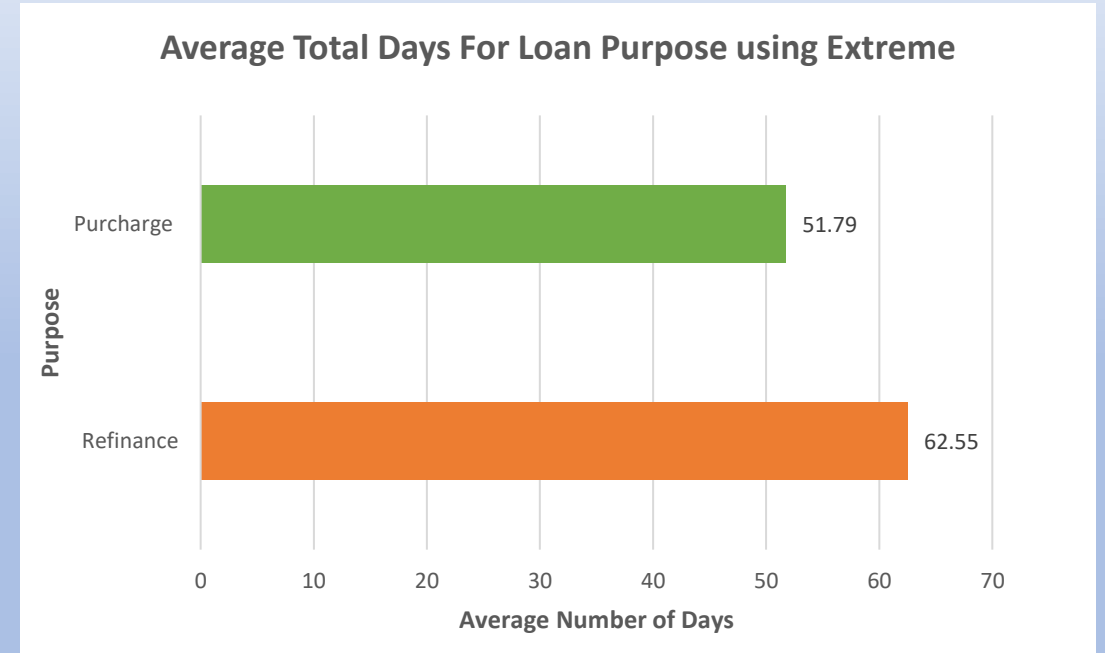
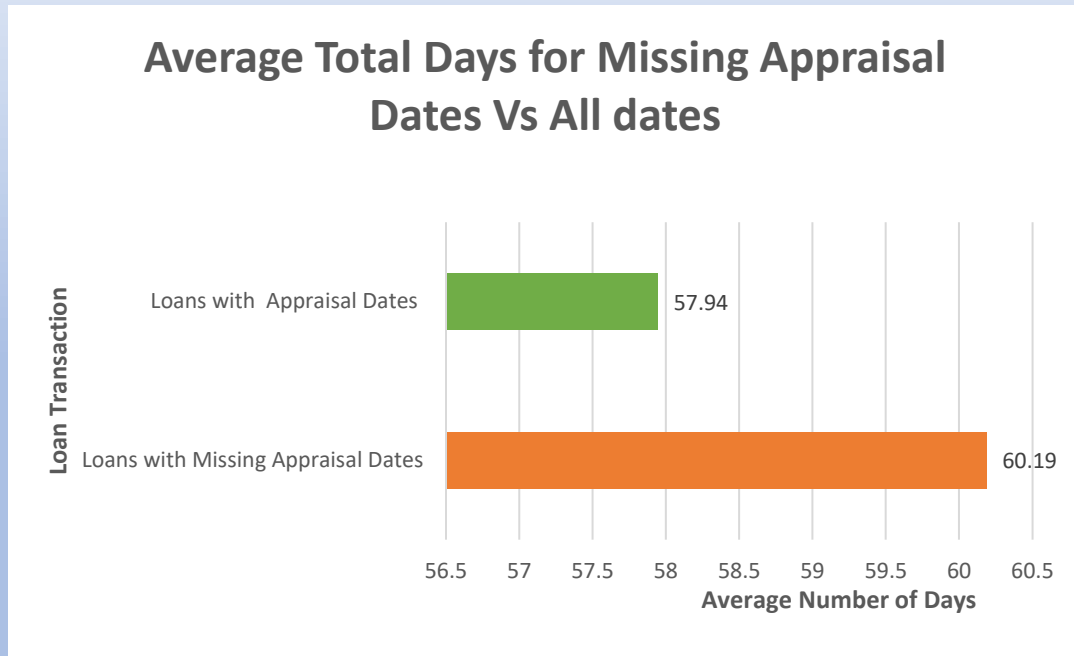
Incorrect Data (Days to process > Total days)

DB Record #	Sales Team	Processor	Application Date	Appraisal Date Ordered	Appraisal Date Received	Estimated Fund Date	Appraisal Due Date	Loan Status	LOS System	Purpose	Days to Process	Closer	Type	Past Fund Date	Days From Application to Closing	Closing days
214	Team 1	P27	01/23/18	01/30/18	02/15/18	04/26/18	02/19/18	In Closing	Bonus	Refi	93	C27	Non-Conv	1	47	22
311	Team 9	P46	02/23/18			04/27/18		In Closing	Bonus	Refi	62	C27	Non-Conv	1	63	7
394	Team 4	P22	03/19/18	03/20/18	04/04/18	04/27/18	04/03/18	In Closing	Extreme	Refi	38	C16	Conv	1	39	7

Incorrect Timestamp (Appraisal Received before Ordered)

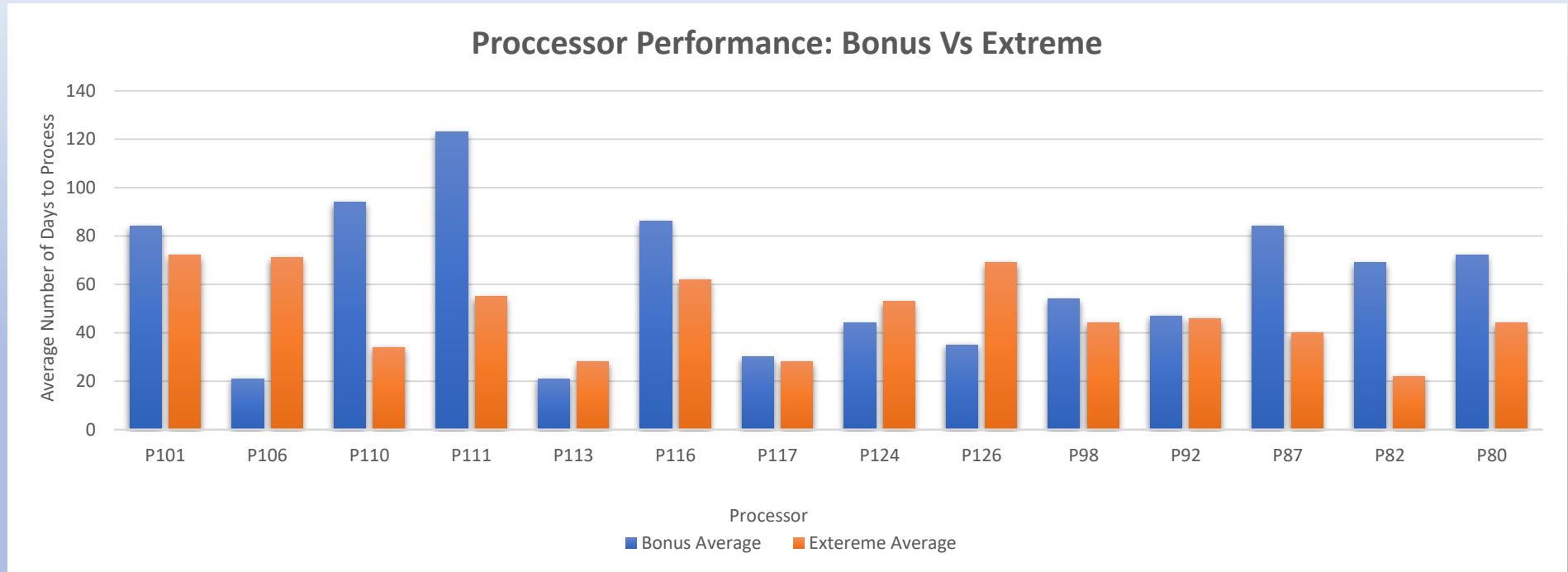
DB Record #	Sales Team	Processor	Application Date	Appraisal Date Ordered	Appraisal Date Received	Estimated Fund Date	Appraisal Due Date	Loan Status	LOS System	Purpose	Days to Process	Closer	Type	Past Fund Date
377	Team 10	P87	03/13/18	04/26/18	04/10/18	04/27/18	04/06/18	In Closing	Extreme	Refi	34	C6	14	38

Extreme : Weakness & Opportunities



(Only for loans where appraisal date is not missing)

Switching to Extreme is better?

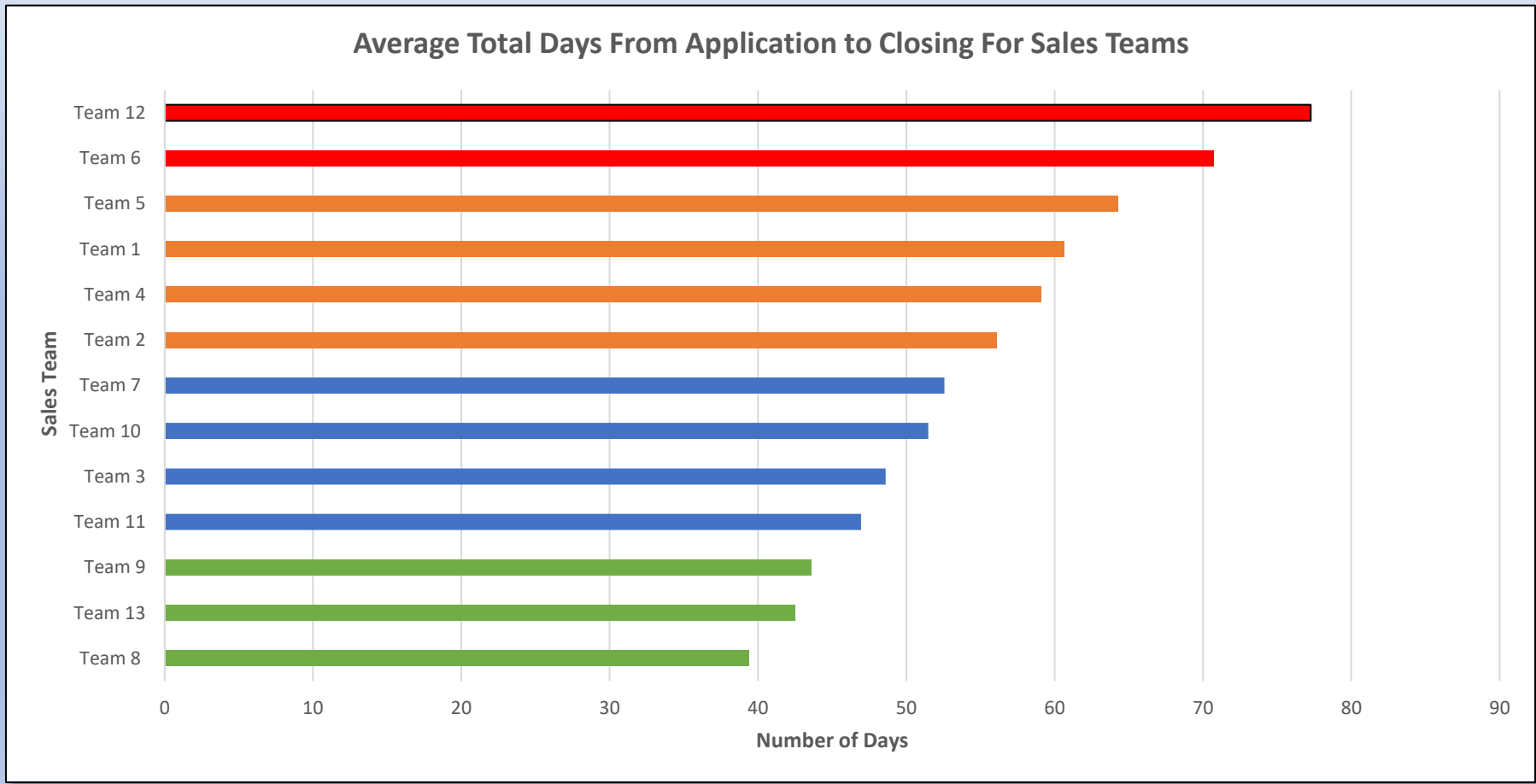


- Switching from Bonus to Extreme improved loan processing
- The Extreme takes less days to finish the process in compare to Bonus
- On an average Extreme system is more cost effective

Analytics for Sales

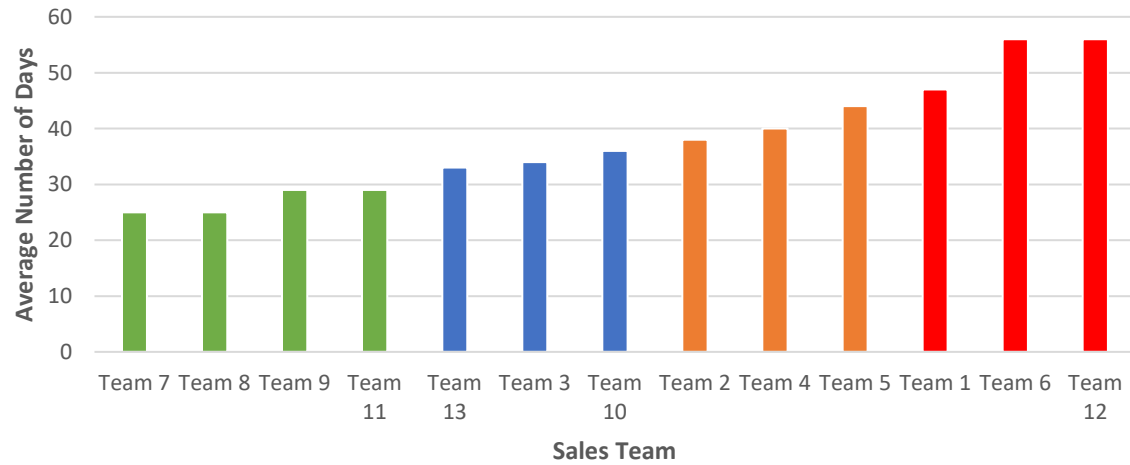
This section addresses questions raised by VP of Sales

Sales Team Performance

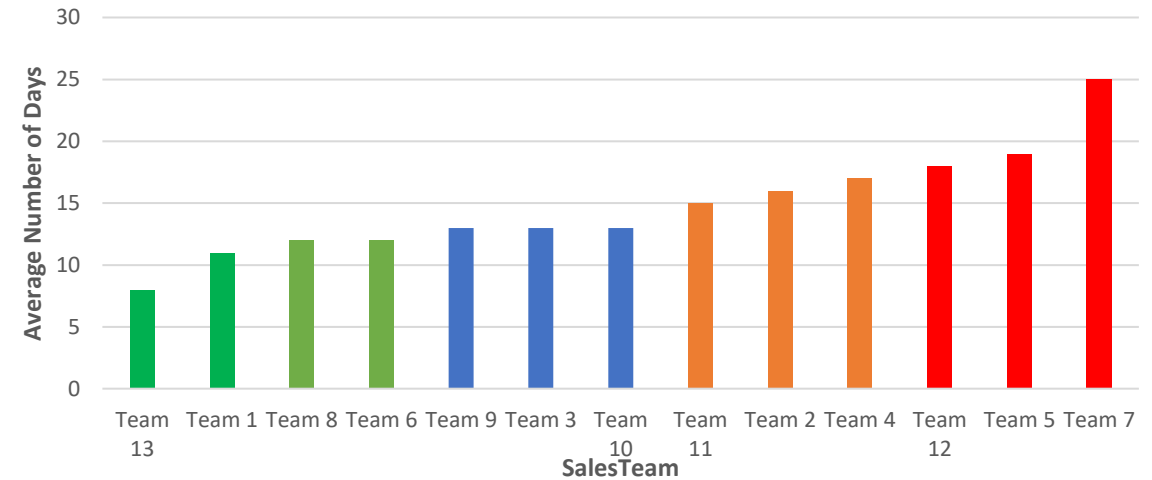


Improvement of Sales Team Performance

Average Days of Processing Days for Sales Team



Average Days of Closing Days for Sales Team

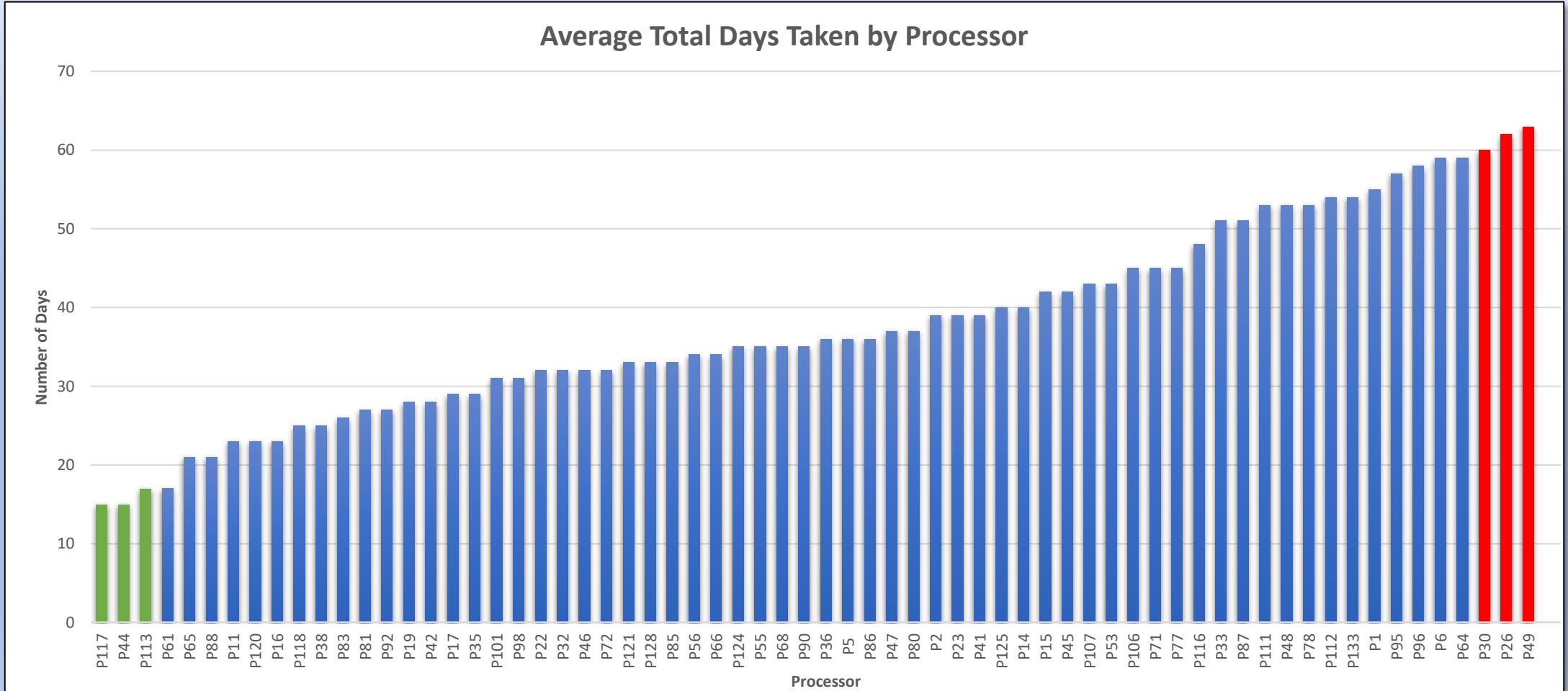


- Team 12, Team 5, Team 4 , Team 2 need to improve both their processing time as well as closing time
- Team 6 and Team 1 need to improve there processing time , As their closing time are among the top sales team.
- Team 7 need to improve there closing time, as they are taking highest in closing and least in processing

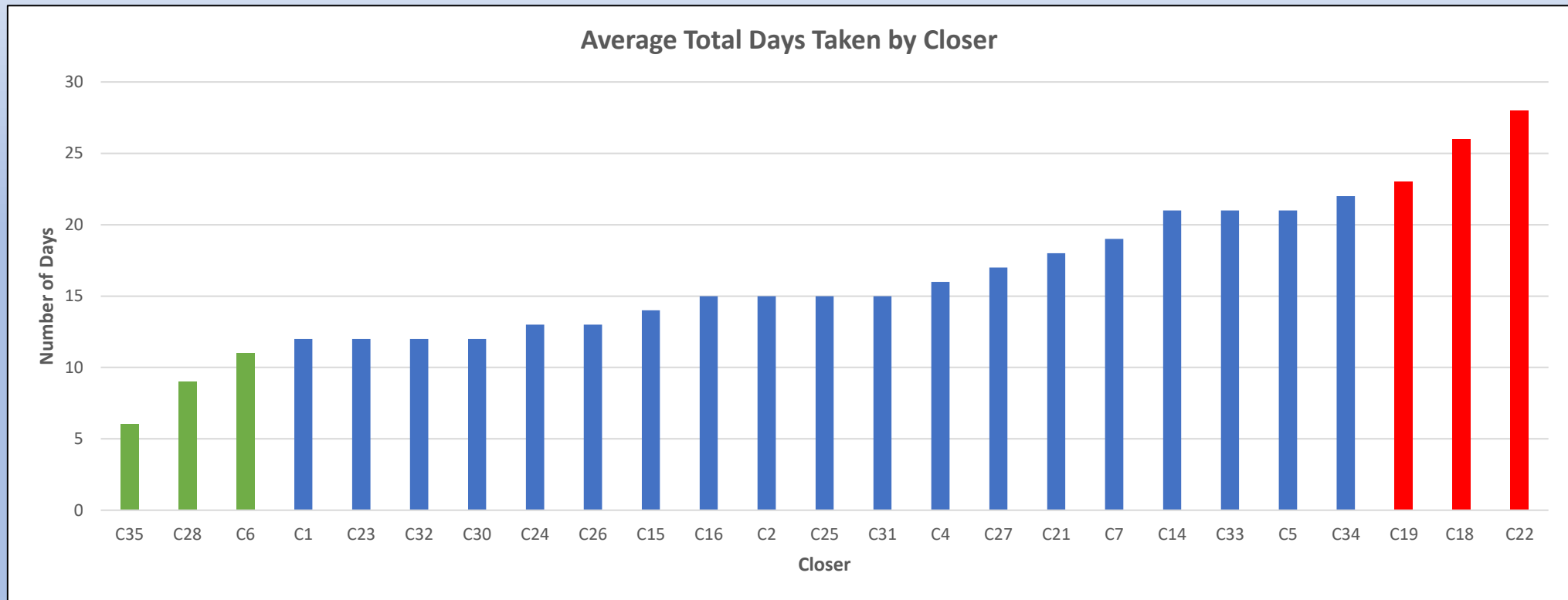
Analytics for Loan Processing

This section addresses questions raised by VP of Loan Processing

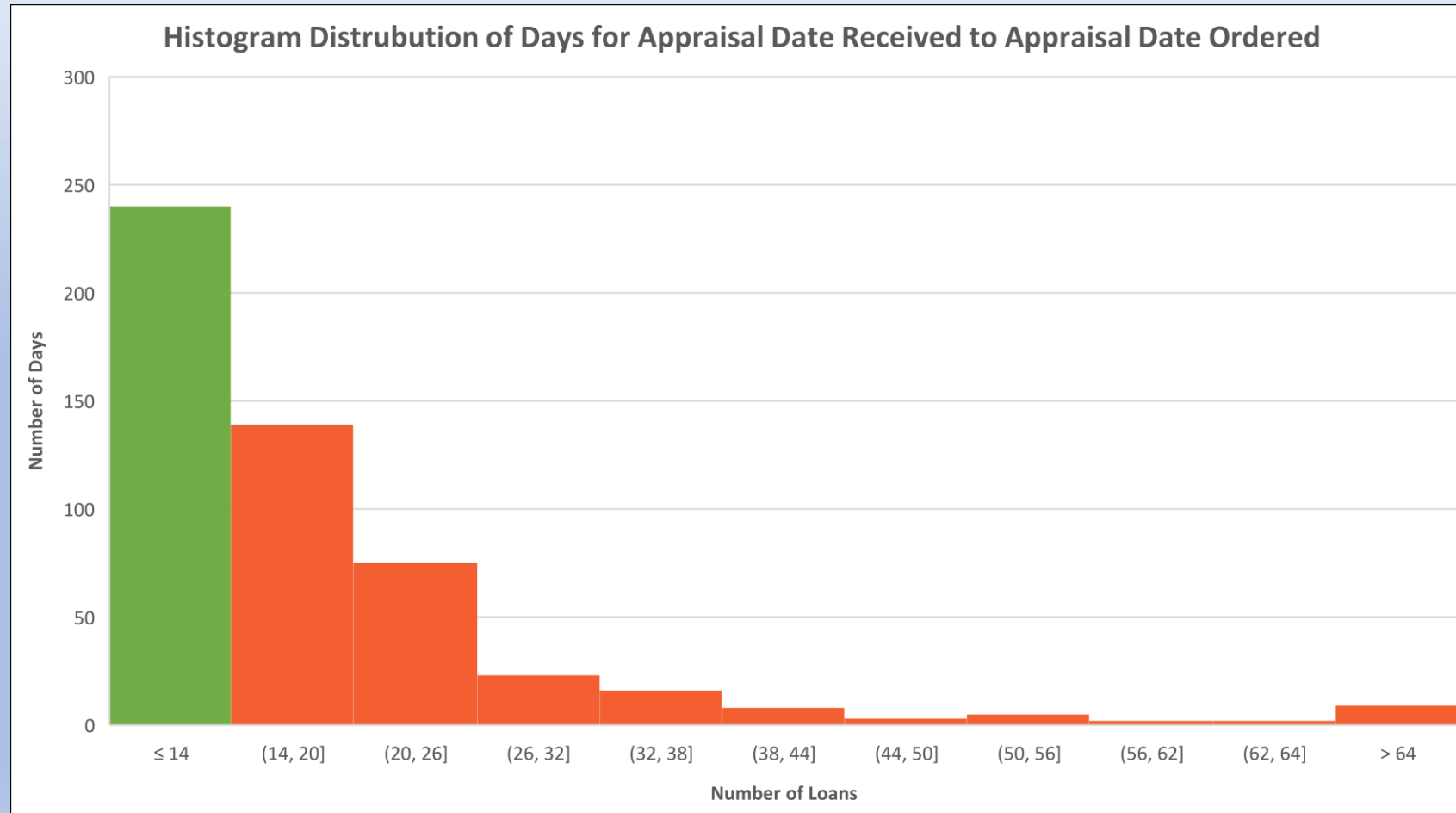
Performance of Processors



Performance of Closers

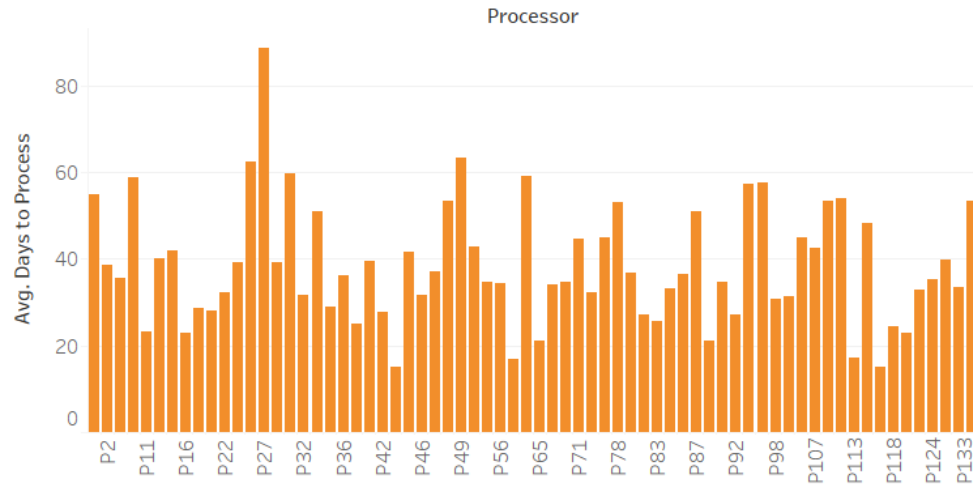


Issues with Appraisals

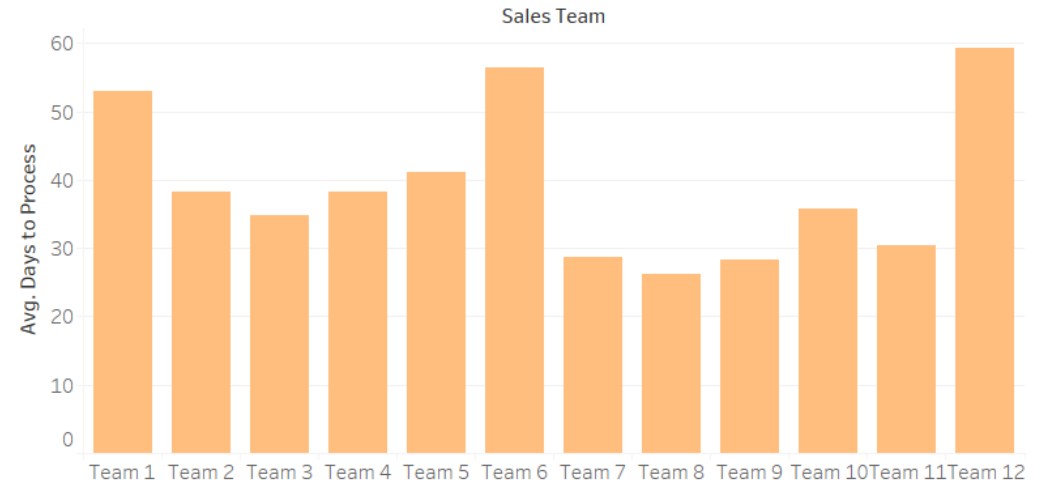


An Executive Dashboard

Processor Average Days To Process



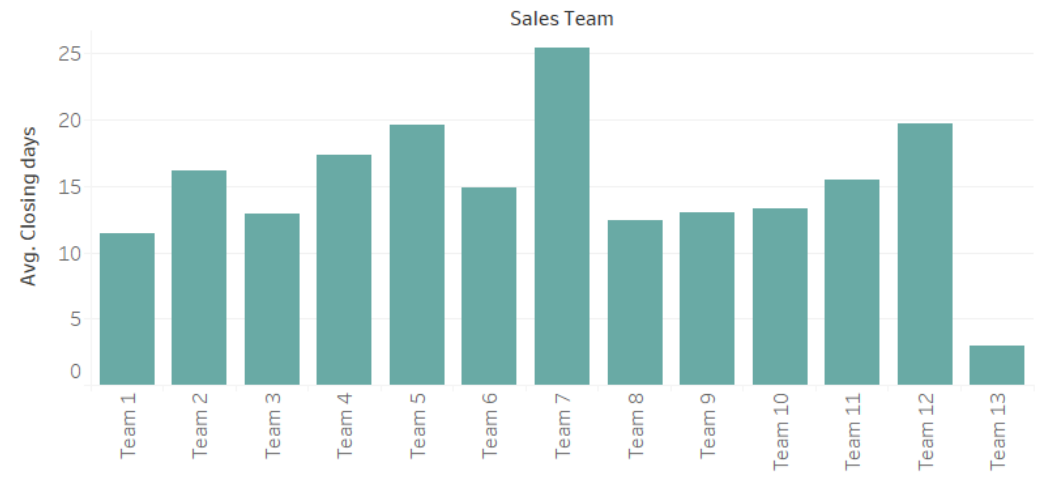
Salesteam Average Days to Process



Closer Average Days to Closing



Salesteam Average Days to Closing



thank You.