

The background is a solid purple gradient. Overlaid on this are several thin, white, curved lines that flow from the left side towards the right, creating a sense of movement and depth. These lines are more densely packed in some areas, forming a wave-like pattern that peaks towards the right side of the image.

LENDING CLUB CASE STUDY - SANCHITA GANGOPADHYAY

BUSINESS OBJECTIVE

A consumer finance company specializing in lending various types of loans to urban customers wants to analyze the risk of approving loan application based on past data. Two types of risks are associated with the bank's decision:

- If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company
- If the applicant is likely to default, then approving the loan may lead to a financial loss for the company

The aim is to :

- Understand the driving factors (or driver variables) behind loan default
- Identify patterns which indicate if a person is likely to default, for taking actions such as –
 - ✓ Denying the loan
 - ✓ Reducing the amount of loan
 - ✓ Lending (to risky applicants) at a higher interest rate

LOAN DATA SET & APPROACH

Loan status can be of the following two types:

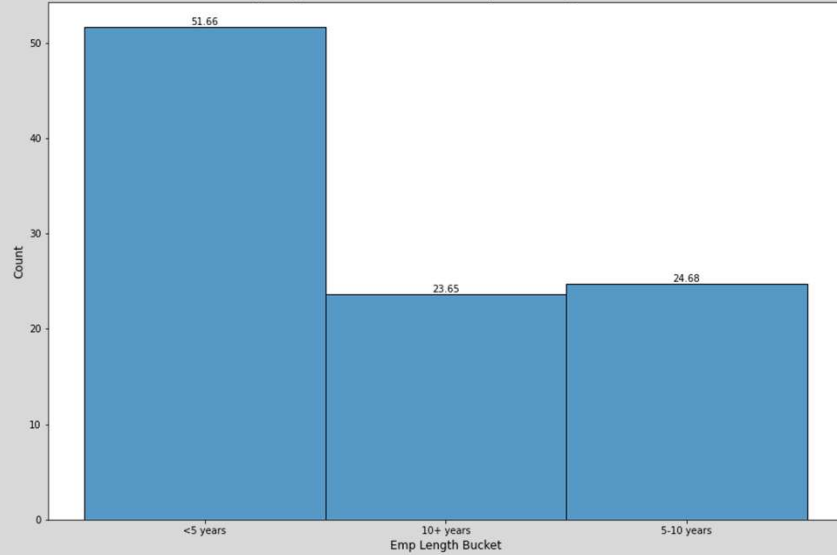
- Loan accepted: If the company approves the loan, there are 3 possible scenarios described below:
 - ✓ Fully paid – Paid back loan amount in full.
 - ✓ Current – Loan account is still active. Considered in analysis if >90% of term length has been paid.
 - ✓ Charged-off – Defaulted. These two terms have been used interchangeably throughout analysis.
- Loan rejected: The company had rejected the loan, these records are not considered for analysis

Three factors For analyzing credit risk:

- Character - length of employments, past bankruptcies, employer, verification status
- Capacity - DTI, annual income, homeownership
- Conditions – Funded amount, Interest rate, term length, Purpose

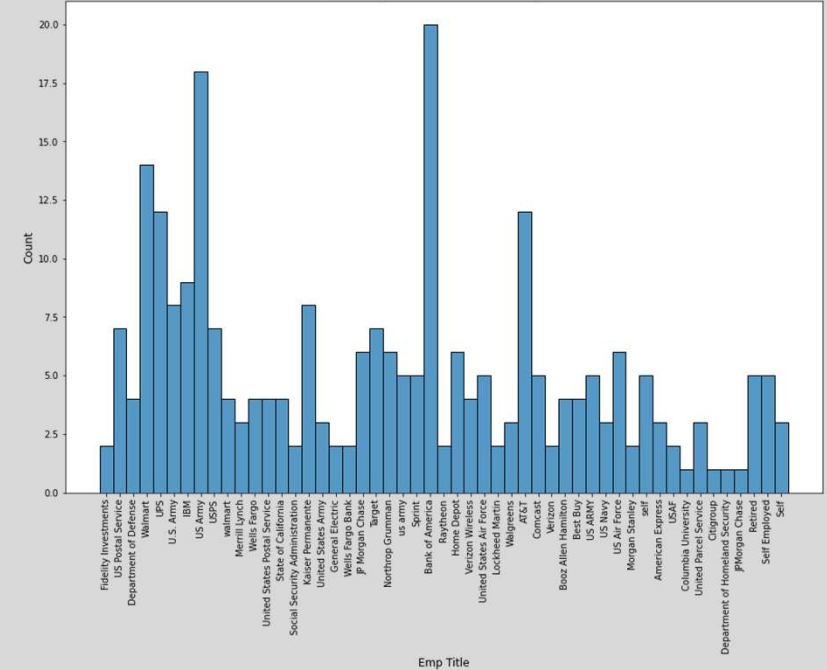
ANALYSIS ON CHARACTER

Emp Length Bucket Count Percentage for Charged-off loans



Around 52% of charged-off loan customers have <5 years employment length

Emp tilt by Loan Status for Charged-off

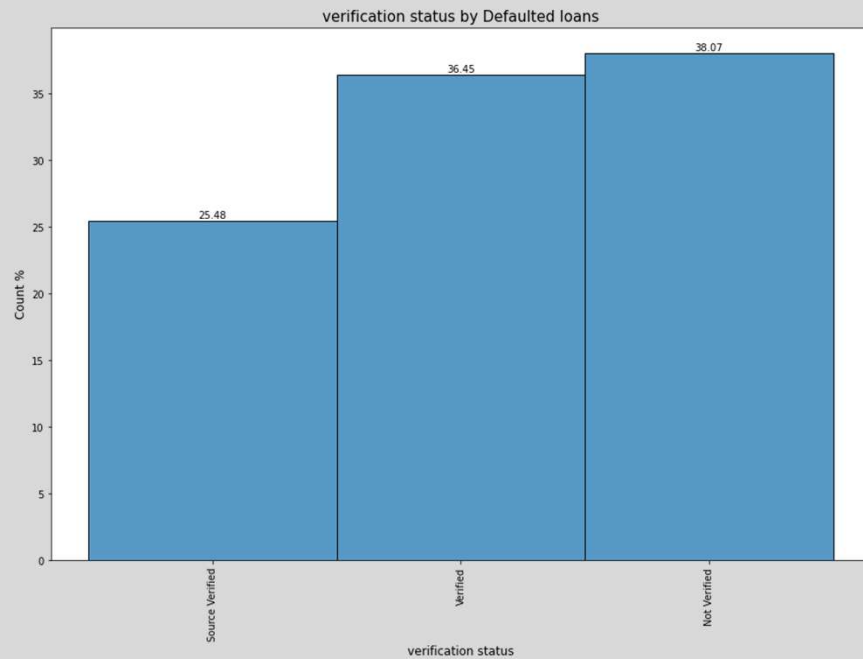


Top 3 employers for defaulted loans are US Army, Bank of America and Walmart.

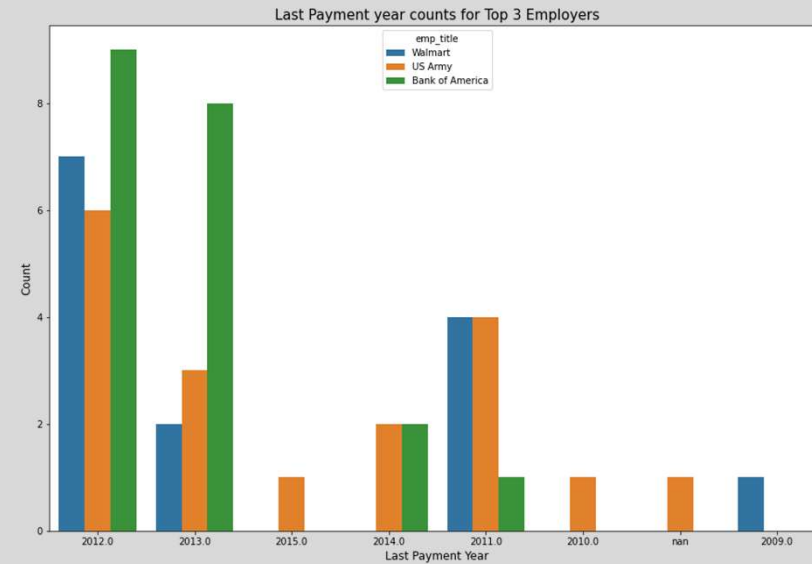
loan_status	emp_length_bucket	funded_amnt	int_rate
		median	median
Charged Off	10+ years	12375.0	13.99
	5-10 years	10175.0	13.72
	<5 years	8500.0	13.49
Fully Paid	10+ years	10450.0	11.49
	5-10 years	10000.0	11.49
	<5 years	8175.0	11.49

Median of Funded amount for Charged-off loans with 10+ years of employment is higher than others

ANALYSIS ON CHARACTER – CONTD.



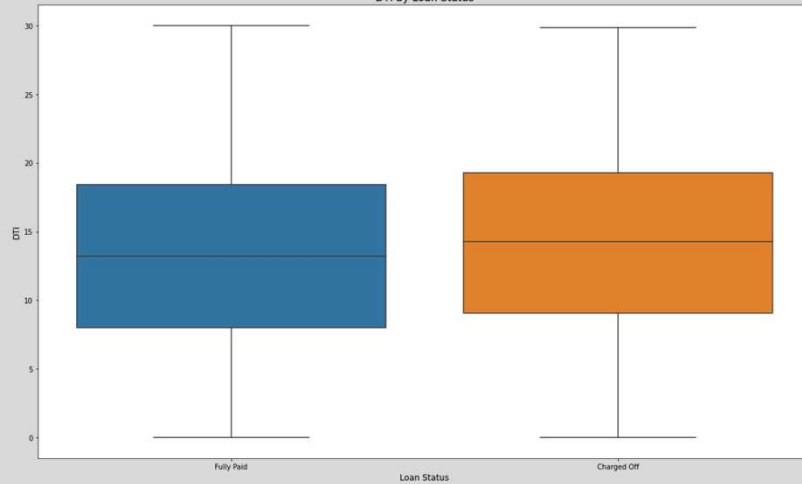
For 38% of defaulted customers, employment/source of income was not verified



Most Bank of America customers stopped paying in 2012 and 2013. BOA had major job cuts during 2011-2013, which may have resulted in this

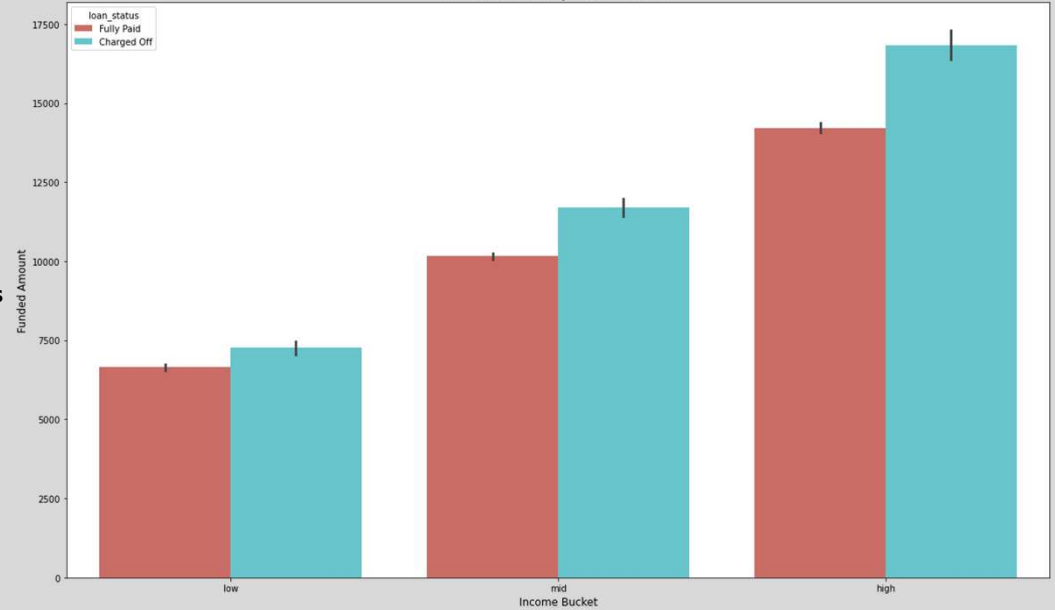
ANALYSIS ON CAPACITY

DTI by Loan Status



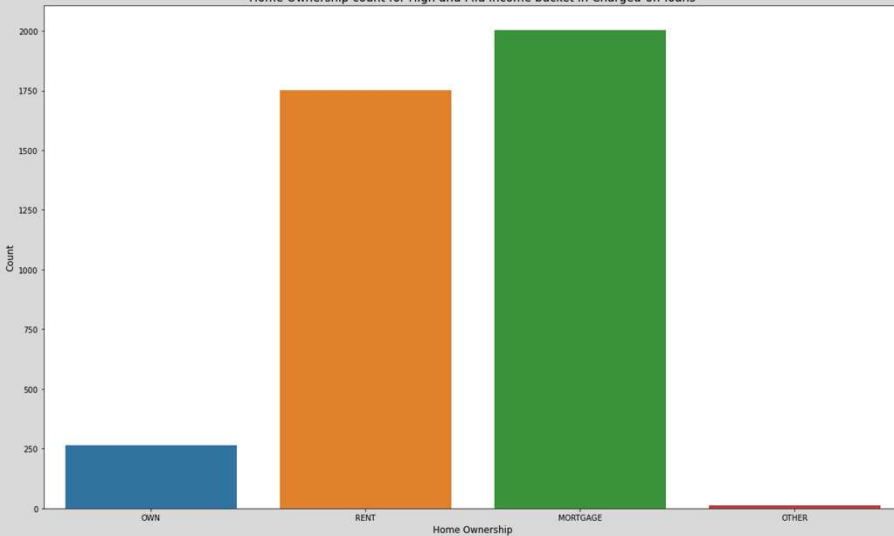
Median DTI for Charged-off loans is around 8% higher than Fully-paid loans

Funded amount by Income Bucket



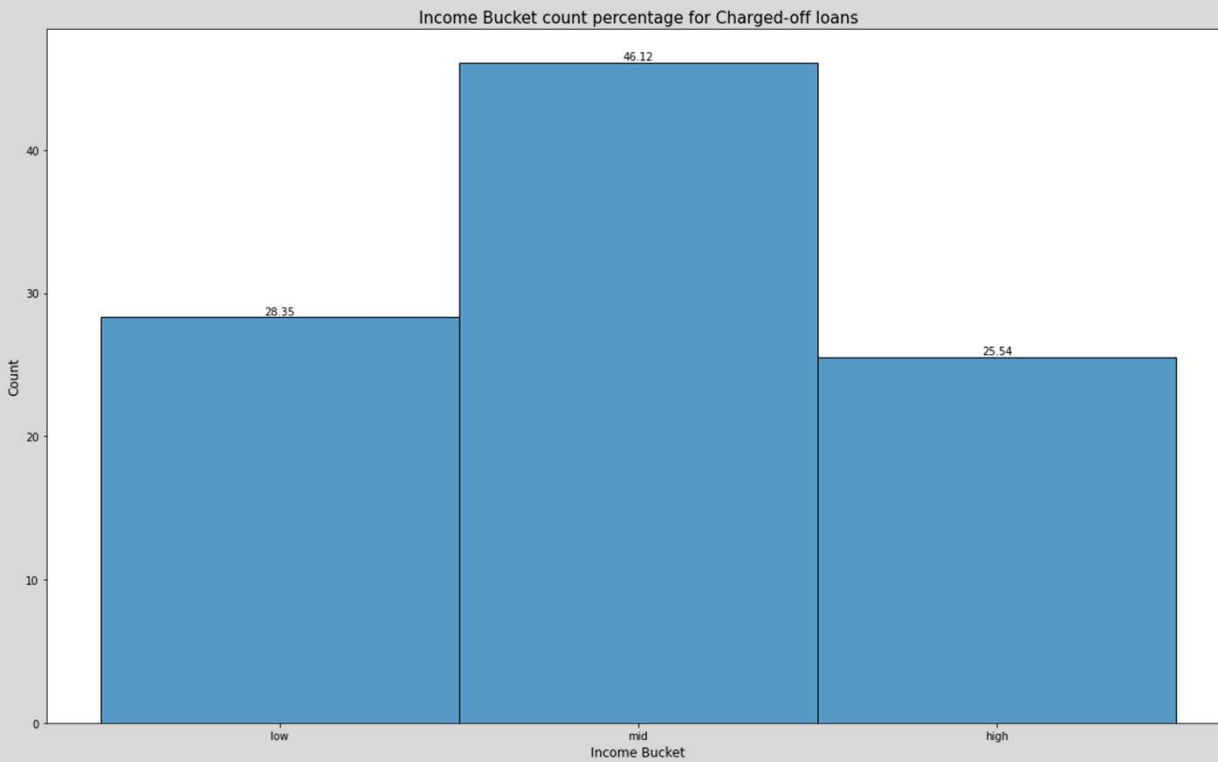
- For fully paid loans, highest median funded amount is around 13K, whereas it is around 18K for Charged off loans (both in high income bucket).
- Funded amount for Charged-off loan is considerably higher than that of Fully paid loans across income groups, especially for High income group.

Home Ownership count for High and Mid income bucket in Charged-off loans



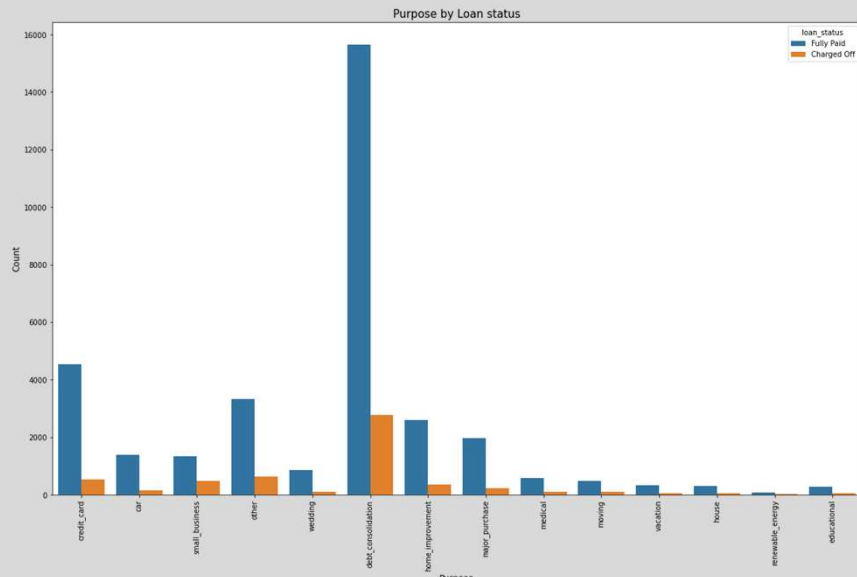
Majority of charged-off customers in high and mid income buckets had either mortgaged or rented home

ANALYSIS ON CAPACITY – CONTD.

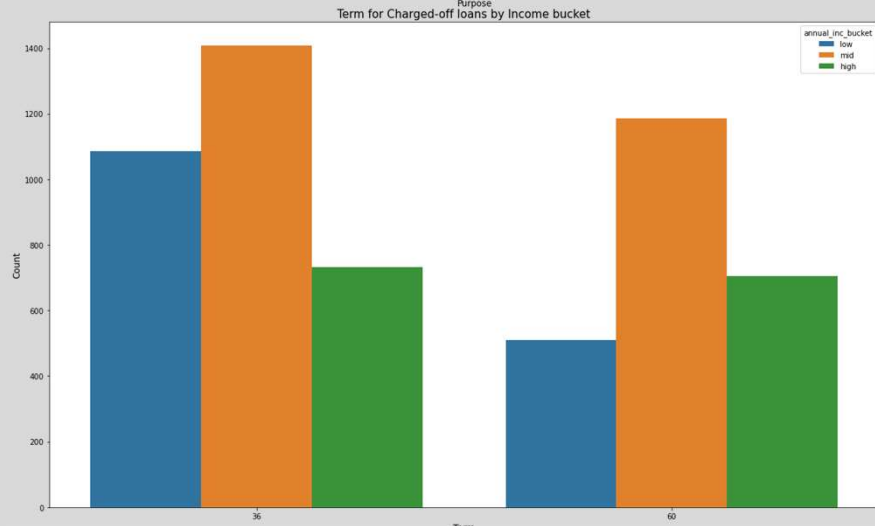


46% of defaulters were from Mid income bucket

ANALYSIS ON CONDITIONS

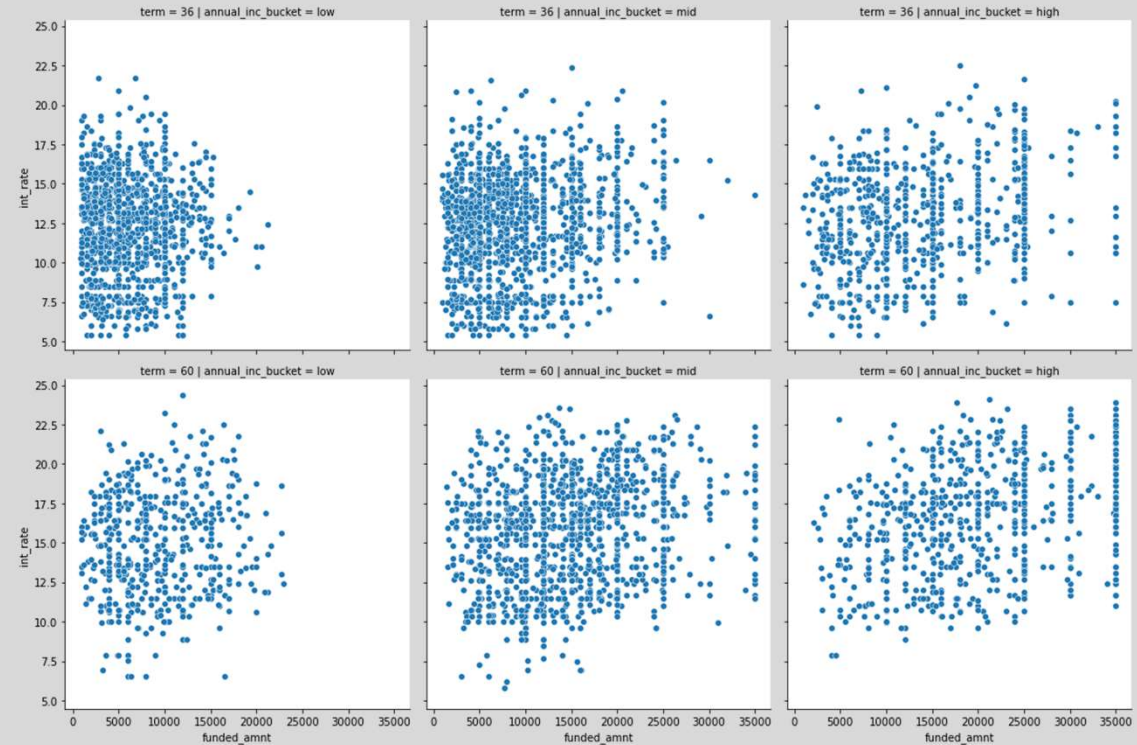


Most common category of purpose is debt-consolidation across Charged-off and Fully-paid loans



Charged-off loans in low and mid income buckets have more customers with 36 months of term

Relation between Funded amount and Interest rate across Income buckets and Term lengths



Interest rate tend to be on the higher side for 60 months of term length in mid and high income group for Charged-off loans, but not for 36 months term, although majority defaulted customers have 36 months term

ANALYSIS & RECOMMENDED GUIDELINES

Most important parameters to be considered for analysing default risk:

- Length of employment
- Annual income
- Debt to income ratio
- Employer reputation
- Requested loan amount
- Employment verification

Guidelines for loan approvals:

- Exercise caution while approving loan application for customers with employment length less than five years
- Refer to Table – 1 for recommended guideline on loan amount across employment length and income buckets
- In case requested funding amount is considerably more than the recommended levels, consider it to be a risk
- Rigorous verification of employment/source of income to be done for all loan applications
- Consider raising interest rate by 5% for mid and high income group customers seeking 36 months of term
- Employer reputation and job stability to be considered

Employment length	Income Bucket	Recommended Funded amount
10+ years	high	13750.0
	low	6600.0
	mid	10000.0
5-10 years	high	12800.0
	low	6200.0
	mid	9600.0
<5 years	high	12000.0
	low	5500.0
	mid	9000.0

Table - 1

THANK YOU

The background is a solid blue rectangle. A horizontal pink bar is positioned across the middle-left. A vertical teal bar is located towards the right side. A large orange rectangle is situated in the top-right corner. A thin gold border frames the blue area, and the text 'THANK YOU' is written in white in the upper-left.