

# ManyGiftsUK Recommender System

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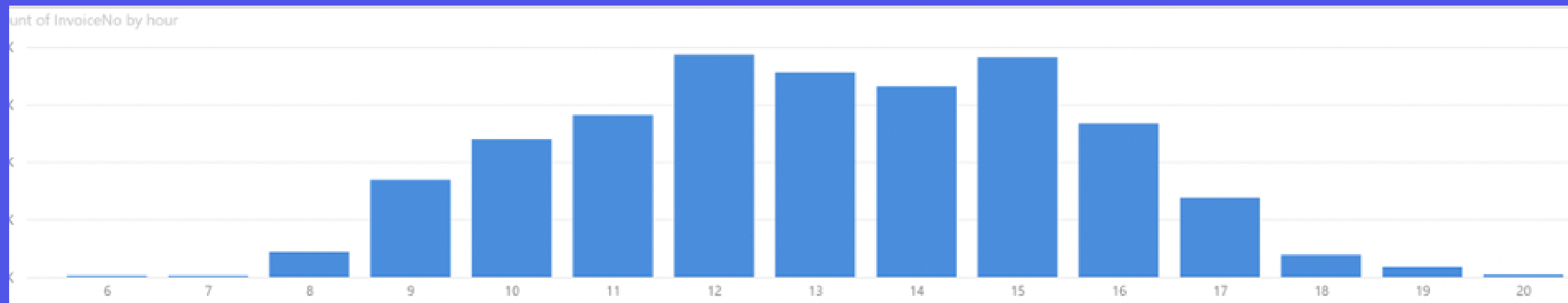
Report on the creation of the system

We have data about users  
We have data about items  
We have data about purchases  
How can we generate value  
through this data?

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Using data smartly to generate value.

# What are the buying behaviors?



## Time of buy

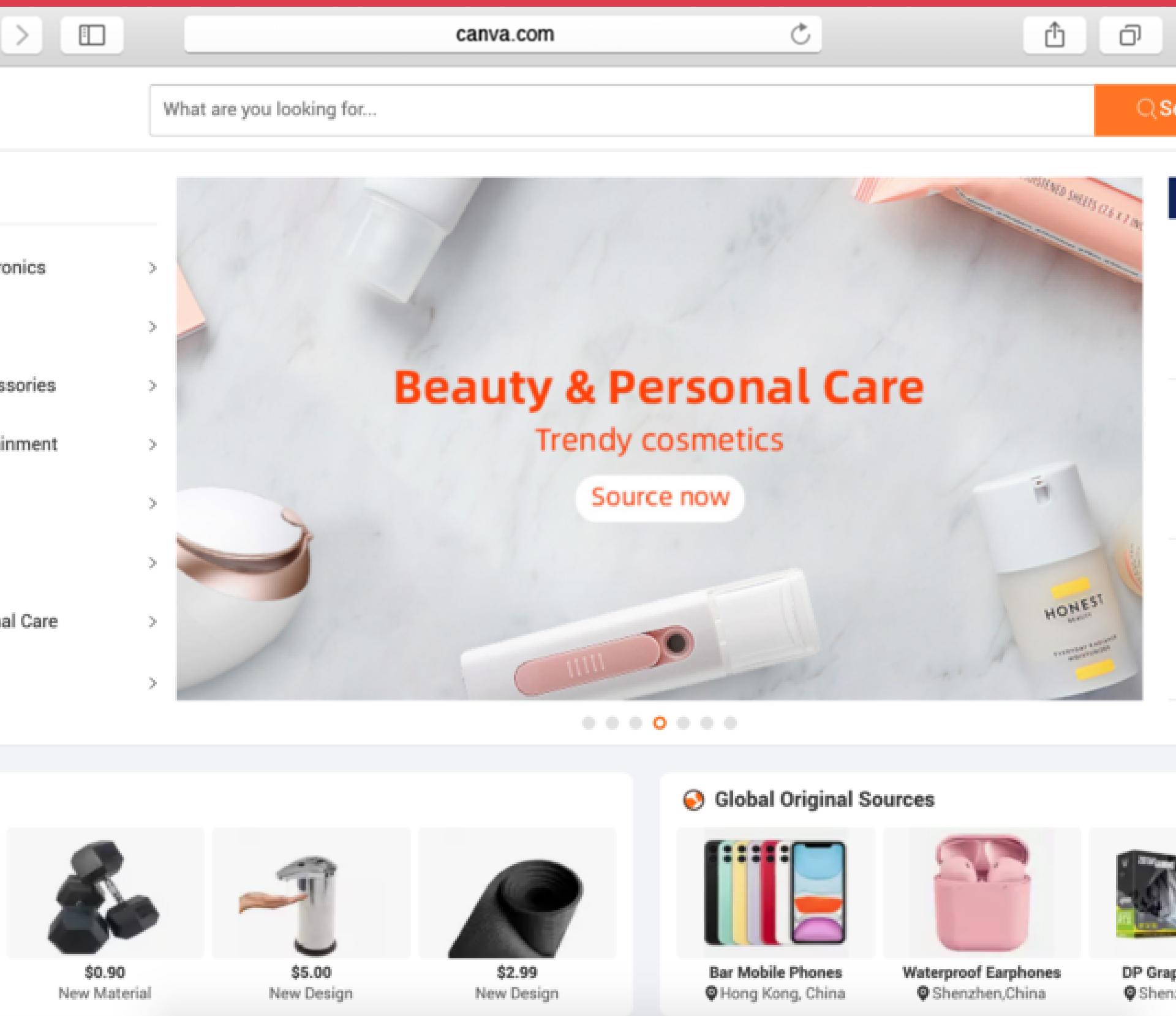
As we can see in the plot, being wholesalers, costumers tend to buy during work hours.

## Day of the week

The days of the week in which more invoices are generated are Monday Wednesday and Thursday.

## Month

The month with biggest amount of purchases is November.



# How can we suggest the right products?

Through implicit data we can build a sparse matrix user-item of 0 and 1 to know the customer behavior across all the items for the whole period.

Through different models we tried to build a recommendation system

# LightFM

A hybrid model that uses both collaborative and content based filtering.

## EVALUATION

<b>Recall@k</b>	<b>0.11</b>
<b>Precision@k</b>	<b>0.15</b>
<b>AUC</b>	<b>0.8</b>

## EXAMPLE

StockCode	Description
84859C	PINK DISCO HANDBAG
22055	MINI CAKE STAND HANGING STRAWBERRY
84569A	PACK 3 IRON ON DOG PATCHES
21629	SQUARE FLOOR CUSHION VINTAGE RED
21242	RED RETROSPOT PLATE

**Recommended items for user\_id "13408"**

# How do we address the Cold Start Problem?

How do we recommend items for new users?

**Recognize  
New User**

When a user enters the webpage without any record of purchases, he is recognized as new user

**Recommend  
Popular Items**

The most popular items in the previous month are recommended

**User Enters  
a Page**

When the user gets interested on a product, he enters the page of the product

**Use KNN to  
Recommend**

Then we use the product of the page to do KNN with the 5 nearest products

# Deployment

## CHALLENGES

Model evaluation is not enough

Recommendations may change continuously

Missing explicit data

## TIPS

A/B testing for real life

Hire and create a team for API development

Understanding serendipity

**Thank  
you for  
your  
time!**

**It is a pleasure showing our  
solutions to you**