



CS 6313.003

eBay 1

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Outline

- Information and stats about Ebay database
- Functionalities and services provided by Ebay
- Design pattern - EER diagram
- Final relational schema
- Stored Procedures
- Triggers

Information and stats about Ebay database

- On average day, eBay system runs through 26 billion SQL queries
- 182M registered users Ebay
- Built on Oracle databases
- Over 1000 logical databases on ~400 physical hosts
- Every database has at least 3 on-line databases. Distributed over 8 data centers
- Over one billion page views per day

Functionalities and services provided by Ebay

User Account

Activity

Messages

Account

My eBay Views

My Account

Personal Information

Addresses

Payment Options

Communication Preferences

Site Preferences

Seller Dashboard

Feedback

PayPal Account

Donation Account

Subscriptions

Resolution Center

Advertisement Preferences

Permissions

Personal Information

Account Information

Account type	Individual	Edit
User ID	ranahl_42	Edit
Password	*****	Edit
Secret questions	-- ?	Create
About Me page	--	Edit

Email and Contact Information

Registered email address	a...p@gmail.com	Edit
Registered name, address and phone number	--	Create


Financial Information

Update your [automatic payment method](#).

You can make a [one-time payment](#) using PayPal or another payment method.

Checkout saved payment methods

You have no saved payment methods. [Learn more](#)

 Charity payment method

In order to donate a percent of your sales to benefit charity, a valid PayPal account is required. This will be automatically used to process any future donations.

PayPal Account	Not Specified	Edit
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Functionalities and services provided by Ebay

Buy item/ Bid on item

The screenshot shows an eBay product listing for "LEVI'S 569 LOOSE STRAIGHT Men's Sz 38 x 32 100% Cotton Denim JEANS". The item is pre-owned and has a starting bid of US \$0.99. The listing includes a large image of the jeans, a search bar, and navigation links. The "Place bid" and "Buy It Now" buttons are highlighted with red circles. The listing also shows the shipping cost, delivery date, and payment options.

ebay Shop by category All Categories

[Back to search results](#) | Listed in category: [Clothing, Shoes & Accessories](#) > [Men](#) > [Men's Clothing](#) > [Jeans](#)

LEVI'S 569 LOOSE STRAIGHT Men's Sz 38 x 32 100% Cotton Denim JEANS

🔥 5 viewed per hour

Condition: **Pre-owned**
Time left: 4d 21h Sunday, 8:00PM

Starting bid: **US \$0.99** [0 bids]

Enter US \$0.99 or more

Price: **US \$30.00**

Place bid

Buy It Now

Add to cart

♥ Add to Watchlist

Longtime member Returns accepted

Shipping: **\$7.25** Expedited Shipping | [See details](#)
Item location: Mount Olive, Illinois, United States
Ships to: United States and many other countries | [See details](#)

Delivery: Estimated between **Thu. Dec. 12** and **Sat. Dec. 14** to 75252 ?

Payments:








Functionalities and services provided by Ebay

Sell Products

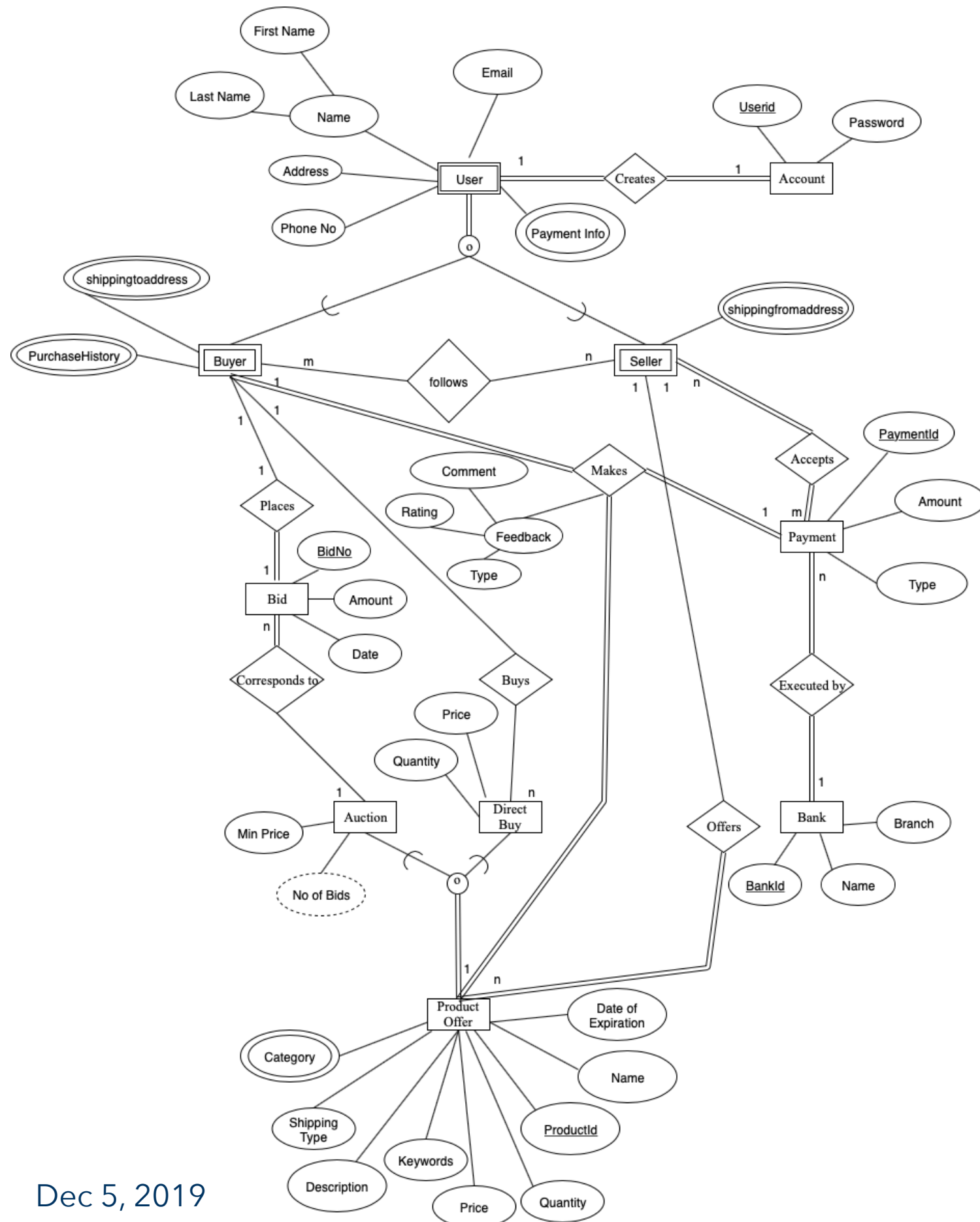
The screenshot shows the eBay Seller Dashboard. At the top, there is the eBay logo, a 'Shop by category' dropdown, a search bar with the text 'Search for anything', a category dropdown set to 'All Categories', a blue 'Search' button, and a link to 'Advanced' search. Below this is a breadcrumb trail: 'Home > My eBay > My Account > Seller Dashboard'. A navigation bar contains four tabs: 'Activity', 'Messages', 'Account' (which is selected), and 'Applications'. On the left side, under the 'My Account' heading, there is a list of links: 'Personal Information', 'Address', 'Seller Account' (circled in red), 'Preferences', 'Manage communication with buyers', 'Seller Dashboard' (highlighted with a grey arrow), 'Resolution Center', 'PayPal Account', and 'Subscriptions'. The main content area features a large white box with the text 'Sell your first item on eBay to see your Seller Dashboard!'. Inside this box, a 'Start selling' button is circled in red, and below it is a link that says 'Learn the selling basics'.

Functionalities and services provided by Ebay

Purchase History

ORDER DATE Sep 06, 2015		ORDER TOTAL US \$154.92	Leave feedback
1 item sold by watchesplus11		Free shipping	View order details
			More actions ▼
	SPECIAL BRAND NEW G SHOCK WITH TAGS!! GA1000-9G Men's G-Aviation Black Classic (171917528093)	\$    	
 Delivered on Thu, Sep 10 Tracking number: 9400109699937885734003		ITEM PRICE: US \$154.92	
ORDER DATE Aug 21, 2015		ORDER TOTAL US \$144.95	View similar items
1 item sold by hotnessfeet215		See description	View seller's other items
			More actions ▼
	Nike Air Max2 CB '94 Charles Barkley Black Purple OG 305440-006 MEN Size: 7.5-13 (221854085671)	ITEM PRICE: US \$144.95	

Design Pattern



User : Account (1 : 1)

Buyer : Bid (1 : 1)

Bank : Payment (1 : n)

Auction : Bid (1 : n)

Buyer : Seller (m : n)

Seller : Payment (m : n)

Final Relational Schema

ACCOUNT

<u>USERID</u>	PASSWORD
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PRIMARY KEY: USERID

EBAY_USER

<u>USER_ID</u>	FNAME	PHONE_NO	LNAME	ADDRESS	PAYMEN_INFO	EMAIL
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PRIMARY KEY: USER_ID

FOREIGN KEY: USER_ID ON ACCOUNT(USER_ID)

SELLER

<u>SELLER_USER_ID</u>	SHIPPINFROMADDRESS	USER_ID
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PRIMARY KEY: SELLER_ID

FOREIGN KEY: SELLER_USER_ID ON ACCOUNT(USER_ID)

BUYER

<u>BUYER_USER_ID</u>	<u>SHIPPINGTOADDRESS</u>	FOLLOWING LIST	<u>USERID</u>
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PRIMARY KEY: BUYER_USER_ID

FOREIGN KEY: BUYER_USER_ID ON ACCOUNT (USER_ID)

Final Relational Schema

PRODUCT OFFER

<u>PRODUCT_ID</u>	PNAME	DATE_OF_ EXP	KEYWORD	CATEGORY	DESCRIPTION	SELLER_USER_ID
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PRIMARY KEY: PRODUCT_ID, SELLER_USER_ID

FOREIGN_KEY: USER_ID

AUCTION

MIN_PRICE	NO_OF_BIDS	PRODUCT_ID	SELLER_USER_ID
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FOREIGN KEY: (PRODUCT_ID, SELLER_USER_ID) ON

PRODUCT_OFFER(PRODUCTID, SELLER_USER_ID)

DIRECT BUY

QUANTITY	PRICE	PRODUCT_ID	SELLER_USER_ID
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FOREIGN KEY: (PRODUCT_ID, SELLER_USER_ID) ON

PRODUCT_OFFER(PRODUCTID, SELLER_USER_ID)

Final Relational Schema

BID

<u>BID_NO</u>	AMOUNT	DATE	<u>PRODUCT_ID</u>	SELLER_USER_ID
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PRIMARY_KEY: BID_NO,PRODUCT_ID

FOREIGN KEY: (PRODUCT_ID,SELLER_USER_ID) ON

PRODUCT_OFFER(PRODUCTID, SELLER_USER_ID)

PAYMENT

<u>PAYMENT_ID</u>	AMOUNT	PAYMENT_TYPE	USER_ID
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PRIMARY_KEY: (PAYMENT_ID, USER_ID)

FOREIGN KEY: USER_ID ON ACCOUNT(USER_ID)

BANK

<u>BANK_ID</u>	B_NAME	BRANCH	PAYMENT_ID	USER_ID
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PRIMARY KEY (BANK_ID),

FOREIGN KEY(PAYMENT_ID, USER_ID) REFERENCES PAYMENT(PAYMENT_ID,
USER_ID)

Stored Procedures

A stored procedure is created to get the **average rating of seller**.

```
CREATE PROCEDURE Get_avg_rating (seller_id    IN CHAR,  
                                   seller_fname OUT CHAR,  
                                   seller_lname OUT CHAR,  
                                   avg_rating   OUT INT)  
  
AS  
BEGIN  
    SELECT E.fname,  
           E.lname,  
           Avg(F.rating)  
    INTO  seller_fname, seller_lname, avg_rating  
    FROM  ebay_user E,  
          feedback F  
    WHERE E.user_id = seller_id  
          AND F.seller_user_id = seller_id;  
  
END;
```

Stored Procedures

A stored procedure is created to get the **purchase history of buyer.**

```
CREATE PROCEDURE Get_purchase_history (buyer_id      IN CHAR,  
                                         description  OUT CHAR,  
                                         name          OUT VARCHAR,  
                                         seller_lname  OUT CHAR,  
                                         seller_fname  OUT CHAR,  
                                         auction_price OUT INT,  
                                         direct_price  OUT INT)  
  
AS  
BEGIN  
    SELECT P.pname,  
           P.p_description,  
           E.fname,  
           E.lname,  
           A.min_price,  
           D.price  
    INTO   name, description, seller_fname, seller_lname,  
           auction_price, direct_price  
    FROM   product_offer P,  
           seller S,  
           auction A,  
           direct_buy D,  
           ebay_user E  
    WHERE  P.buyer_user_id = buyer_id  
           AND P.seller_user_id = S.seller_user_id  
           AND P.productid = A.productid  
           AND P.productid = D.productid  
           AND P.seller_user_id = E.user_id;  
  
END;
```


Triggers

A trigger is created to validate the **bidding price on product**.
Bid price must be greater than minimum value set by seller.

```
CREATE OR REPLACE TRIGGER VALIDATE_BID  
  
AFTER INSERT ON BID  
FOR EACH ROW  
DECLARE  
    PRODUCT_PRICE CHAR(20);  
  
BEGIN  
    SELECT MIN_PRICE INTO PRODUCT_PRICE  
    FROM AUCTION  
    WHERE :NEW.PRODUCTID = AUCTION.PRODUCTID;  
  
    IF :NEW.AMOUNT < PRODUCT_PRICE THEN  
        RAISE_APPLICATION_ERROR( -20001,  
                                'BID VALUE SHOULD BE GREATER THAN MINIMUM VALUE' );  
    END IF;  
END;
```

Script Output x

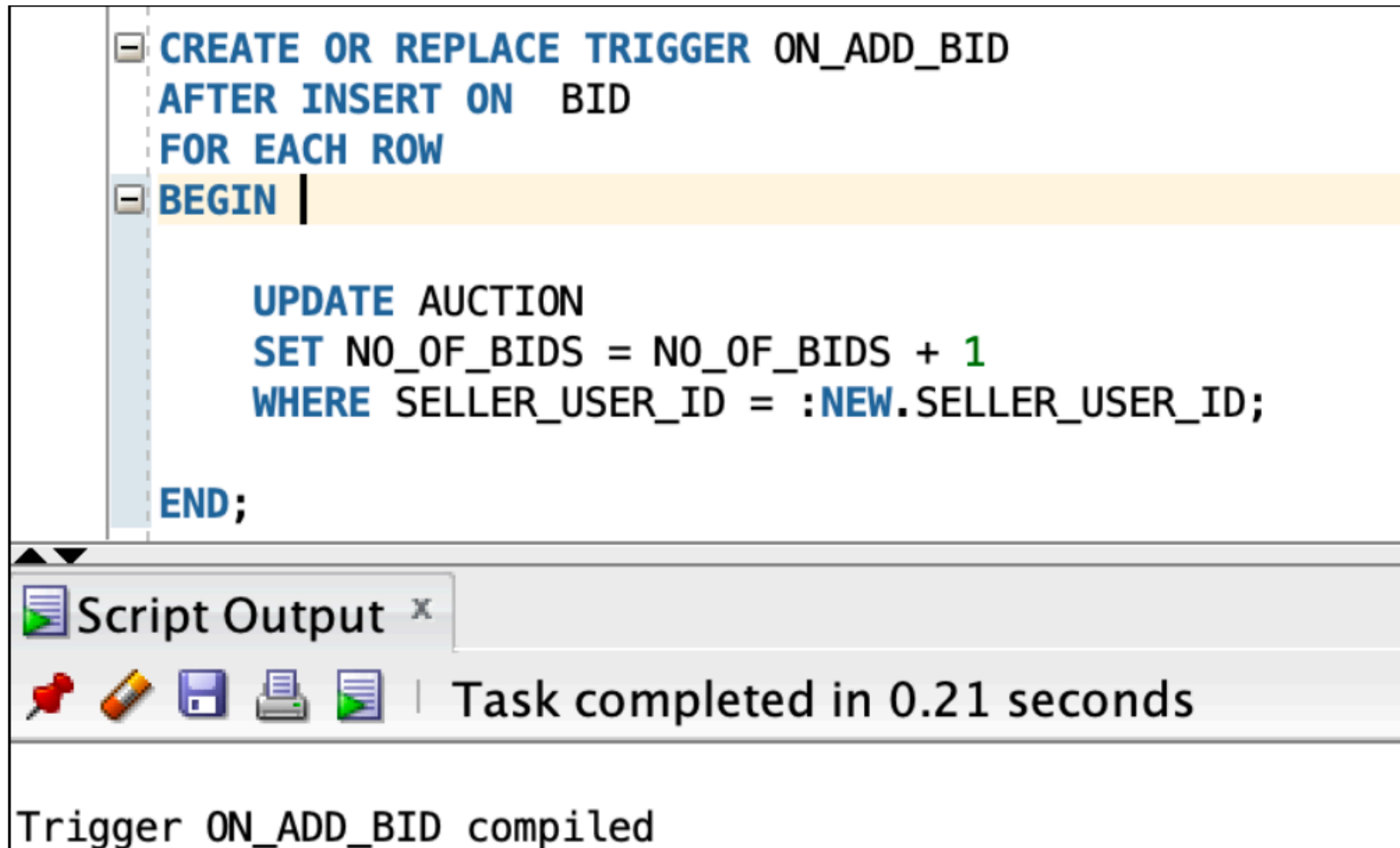


Task completed in 0.228 seconds

Trigger VALIDATE_BID compiled

Triggers

A trigger is created to update number of bids on product when any new buyer places a bid for purchase.



```
CREATE OR REPLACE TRIGGER ON_ADD_BID
AFTER INSERT ON BID
FOR EACH ROW
BEGIN

    UPDATE AUCTION
    SET NO_OF_BIDS = NO_OF_BIDS + 1
    WHERE SELLER_USER_ID = :NEW.SELLER_USER_ID;

END;
```

Script Output x

Task completed in 0.21 seconds

Trigger ON_ADD_BID compiled

Thank You!