

CS2102: DATABASE SYSTEMS

Project

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1.0 Server

We use WAPP (Windows, Apache, PHP, Postgres) Stack for our project.

Web server: Apache

Server Page language: PHP, Javascript

Database management: Postgres

2.0 ER Diagram

Figure 1 below shows the ER Diagram for our project.

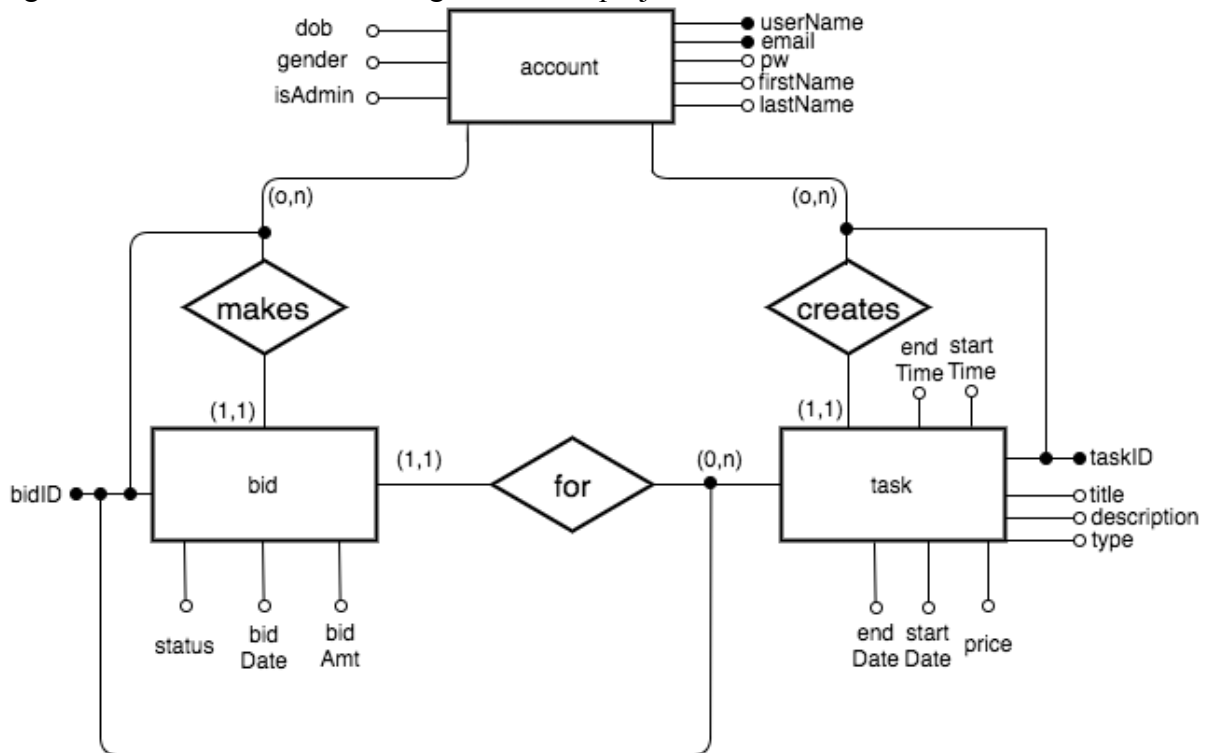


Figure 1: ER Diagram of our Project

3.0 Project

3.1 Relational Schema

3.1.1 Account Table

```
CREATE TABLE account(  
    userName VARCHAR(64) PRIMARY KEY,  
    email VARCHAR(128) UNIQUE,  
    pw VARCHAR(255) NOT NULL,  
    firstName VARCHAR(128) NOT NULL,  
    lastName VARCHAR(32) NOT NULL,  
    dob DATE NOT NULL CHECK (dob < (current_date - interval '18'  
year)),  
    gender VARCHAR(6) NOT NULL CHECK (gender = 'Male' OR gender =  
'Female'),  
    isAdmin boolean NOT NULL  
);
```

3.1.2 Task Table

```
CREATE TABLE task(  
    taskID SERIAL,  
    userName VARCHAR(64) REFERENCES account(username) ON DELETE  
CASCADE,  
    title VARCHAR(255) NOT NULL,  
    description VARCHAR(512) NOT NULL,  
    type VARCHAR(64) NOT NULL,  
    price NUMERIC NOT NULL,  
    startDate DATE NOT NULL CHECK (startDate >= current_date),  
    startTime TIME NOT NULL,  
    endDate DATE NOT NULL CHECK (endDate >= startdate),  
    endTime TIME NOT NULL,  
    PRIMARY KEY (taskID, username)  
);
```

3.1.3 Bid Table

```
CREATE TABLE bid(  
    bidID SERIAL NOT NULL,  
    taskID INTEGER NOT NULL,  
    bidder VARCHAR(64) NOT NULL CHECK (bidder <> taskOwner)  
REFERENCES account(userName) ON DELETE CASCADE,  
    taskOwner VARCHAR(64) NOT NULL REFERENCES account(userName) ON  
DELETE CASCADE,  
    status varchar(8) NOT NULL CHECK (status = 'Pending' OR status =  
'Accepted' OR status = 'Rejected'),  
    bidDate DATE NOT NULL CHECK (bidDate <= current_date),  
    bidAmt NUMERIC NOT NULL,  
    PRIMARY KEY (bidID,taskID,bidder),  
    FOREIGN KEY (taskID,taskOwner) REFERENCES task(taskID,userName)  
ON DELETE CASCADE  
);
```

3.2 Sample Features

3.2.1 Users whose task have the highest amount of bid in a particular category

```
SELECT t1.username FROM bid b1, task t1
WHERE t1.taskid = b1.taskid AND t1.username = b1.taskowner
AND t1.type = 'Miscellaneous'
GROUP BY t1.taskid, t1.username
HAVING COUNT (*) >= ALL (SELECT COUNT (*) FROM bid b2, task t2
WHERE t2.taskid = b2.taskid
AND t2.username = b2.taskowner
AND t2.type = 'Miscellaneous' GROUP BY t2.taskid);
```

Description: Retrieves the user with the highest number of bids for a particular category.

3.2.2 Pagination

```
$result = pg_query($db, "SELECT * FROM task LIMIT 10 OFFSET $page1;");
```

Description: Divides the content of each page equally to a max of 10 per page

3.2.3 Stored procedure for adding user

```
CREATE FUNCTION add_user(userName VARCHAR(64), email VARCHAR(128), pw
VARCHAR(255), firstName VARCHAR(128), lastName VARCHAR(32), dob DATE,
gender VARCHAR(6), isAdmin boolean)
RETURNS void AS $$
BEGIN
    INSERT INTO account VALUES
    (username,email,pw,firstName,lastName,dob,gender,isAdmin);
END;
$$ LANGUAGE plpgsql;
```

Description: Adding new users to the account table in the database

3.2.4 Stored procedure for dashboard completed task statistics

```
CREATE OR REPLACE FUNCTION dashboard_completed_task(userid VARCHAR(64))
RETURNS TABLE (taskid INT, username VARCHAR(64), title
VARCHAR(255), description VARCHAR(512), type VARCHAR(64), price
NUMERIC, startdate DATE, starttime TIME, enddate DATE, endtime TIME)
AS $$
BEGIN
    RETURN Query (
        SELECT t.taskid, t.username, t.title, t.description, t.type,
        t.price, t.startdate, t.starttime, t.enddate, t.endtime
        FROM task t, bid b
        WHERE t.enddate < date_trunc('day', CURRENT_TIMESTAMP)
        AND t.taskid = b.taskid
        AND t.username = b.taskowner
        AND t.username = userid
        AND b.taskOwner = userid
```

```

        AND b.status = 'Accepted'
    );
END
$$ LANGUAGE plpgsql;

```

Description: Using stored function to retrieve the total number of task completed by a user.

3.2.5 Update bid status trigger

```

CREATE TRIGGER updateOtherBids
AFTER UPDATE
ON bid
FOR EACH ROW
EXECUTE PROCEDURE updateBidStatus();

```

Description: Using trigger function to update the other bid status upon a change in a specific bid status. To ensure that the integrity of the bids correspond to each other. E.g. Accepting one bid causes the other bids to be rejected.

3.2.6 Popular views

```

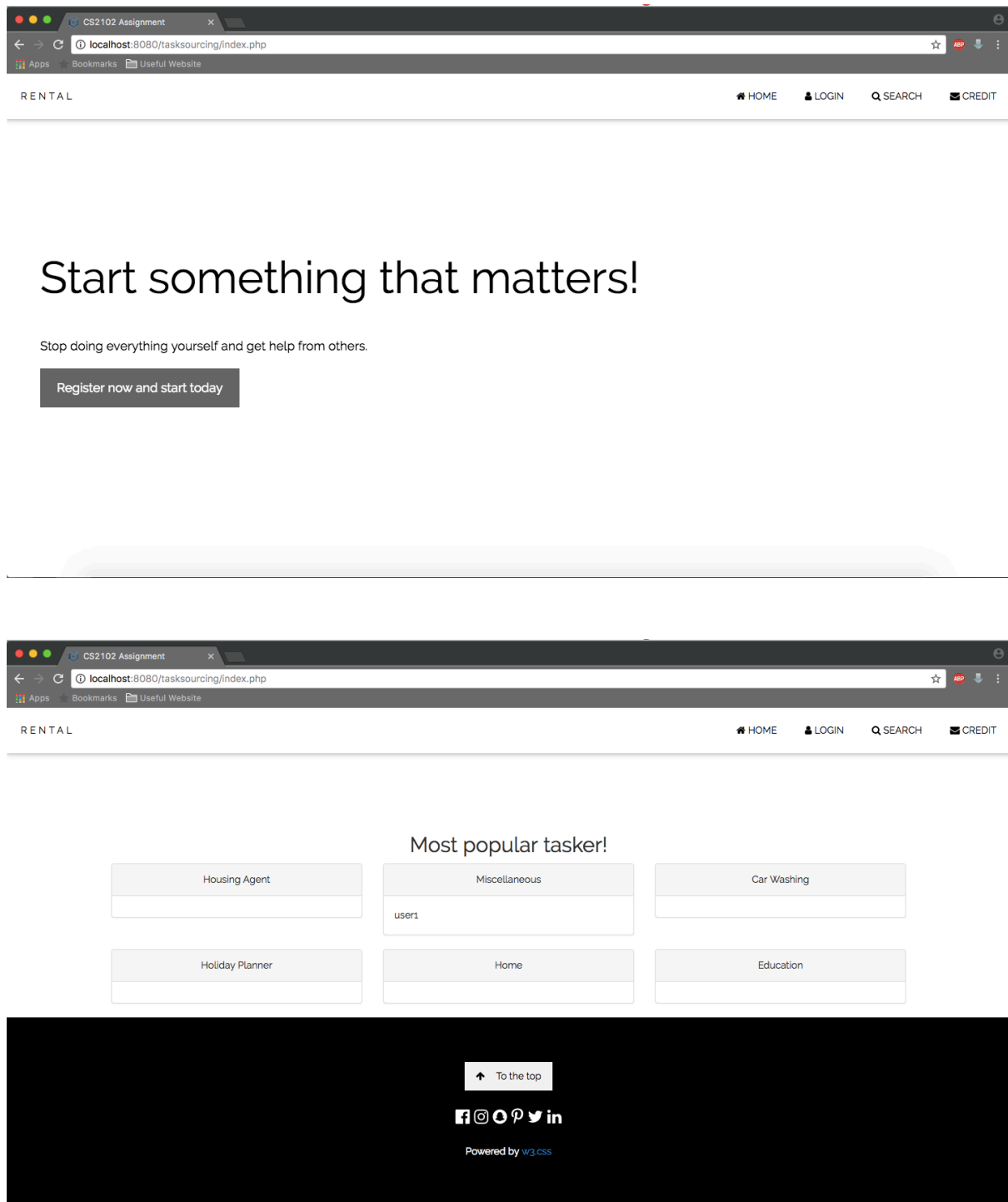
CREATE OR REPLACE VIEW popular_housing_agent AS
SELECT t.username FROM bid b, task t
WHERE t.taskid = b.taskid
AND t.username = b.taskowner
AND t.type = 'Housing Agent'
GROUP BY t.taskid, t.username HAVING COUNT (*) >= ALL
(SELECT COUNT (*) FROM bid b2, task t2
WHERE t2.taskid = b2.taskid
AND t2.username = b2.taskowner
AND t2.type = 'Housing Agent' GROUP BY t2.taskid);

```

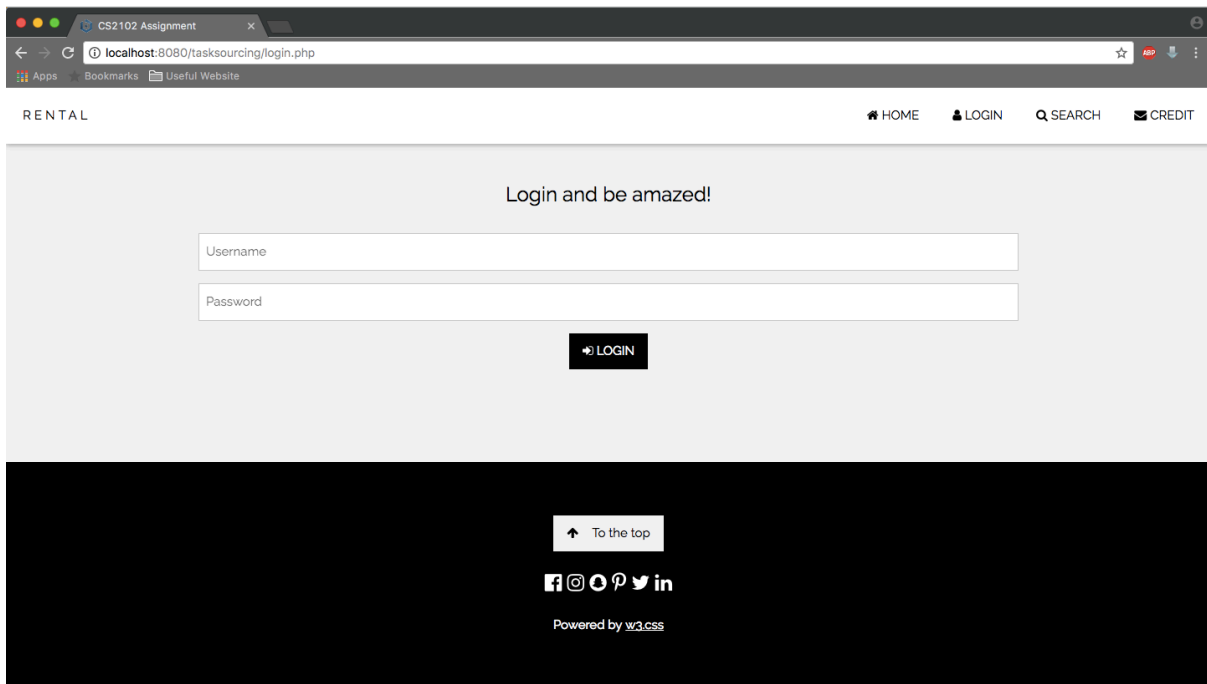
Description: Retrieves user with the highest number of task created for a category.

4.0 Images

4.1 Landing Page



4.2 Login Page



A screenshot of a web browser displaying the login page of a website titled "RENTAL". The browser's address bar shows "localhost:8080/tasksourcing/login.php". The page has a navigation bar with links for HOME, LOGIN, SEARCH, and CREDIT. The main content area has a light gray background with the heading "Login and be amazed!". Below this heading are two input fields: "Username" and "Password". A black button with a white right-pointing arrow and the text "LOGIN" is positioned below the password field. At the bottom of the page, there is a dark gray footer containing a "To the top" button, social media icons for Facebook, Instagram, YouTube, and LinkedIn, and the text "Powered by w3.css".

RENTAL

HOME LOGIN SEARCH CREDIT

Login and be amazed!

Username

Password

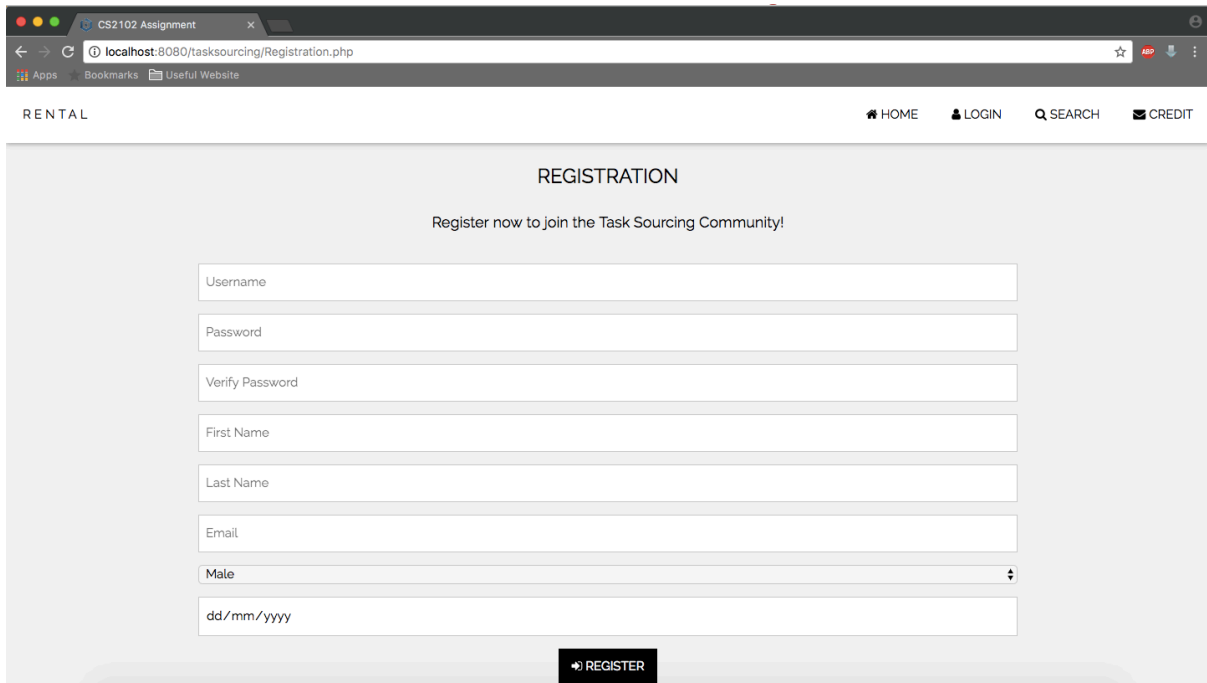
LOGIN

To the top

f i y l

Powered by [w3.css](#)

4.3 Registration Page



A screenshot of a web browser displaying the registration page of the same website titled "RENTAL". The browser's address bar shows "localhost:8080/tasksourcing/Registration.php". The page has the same navigation bar as the login page. The main content area has a light gray background with the heading "REGISTRATION" and the subheading "Register now to join the Task Sourcing Community!". Below these are several input fields: "Username", "Password", "Verify Password", "First Name", "Last Name", "Email", a dropdown menu for "Male", and a date field labeled "dd/mm/yyyy". A black button with a white right-pointing arrow and the text "REGISTER" is positioned below the date field.

RENTAL

HOME LOGIN SEARCH CREDIT

REGISTRATION

Register now to join the Task Sourcing Community!

Username

Password

Verify Password

First Name

Last Name

Email

Male

dd/mm/yyyy

REGISTER

4.4 Search Page

RENTAL

HOME LOGIN SEARCH CREDIT

Browse over 1,000 taskers with the skills you need

Search for a job:

By job title

By type

By Price: Under

By date: dd/mm/yyyy

Go!

Task 4

4.5 Dashboard

4.5.1 User Dashboard

RENTAL

HOME DASHBOARD SEARCH CREDIT

Welcome user1

Dashboard

Create new task

View your tasks

View your bids

Change password

Logout

Upcoming tasks

Title	Description	Start Date	End Date	Start Time	End Time
Task Title	A lot of description	2017-11-03	2017-11-04	11:11:00	11:11:00

Completed 1

Accepted 1

Bidded 3

Amount Earned \$123

4.5.2 Admin Dashboard

The screenshot shows the Admin Dashboard for the RENTAL application. The browser address bar indicates the URL is `localhost:8080/tasksourcing/dashBoard.php`. The dashboard includes a sidebar with links for **Dashboard**, **View All Tasks**, **Change password**, and **Logout**. The main content area features a **Welcome admin1** message and a **Upcoming tasks** section with the text "No task this week! Go start one now!". Below this is a table with columns: Title, Description, Start Date, End Date, Start Time, and End Time. At the bottom, there are four summary boxes: **Completed** (1), **Accepted** (1), **Bidded** (2), and **Amount Earned** (\$923).

4.6 User View All Tasks

The screenshot shows the User View All Tasks page for the RENTAL application. The browser address bar indicates the URL is `localhost:8080/tasksourcing/viewTask.php`. The page displays two tasks under the heading **Your Tasks!**. Each task card includes details such as Type, Date, Time, Price, and Description, along with buttons for **View Bids Here!**, **Edit task**, and **Delete task**.

Task Title	Type	Date	Time	Price	Description
Keep a humanity clean	Miscellaneous	2017-11-06	12:30:00	80	Sometimes things just need a little bit of fire to get things started. Hire me!
Dont break stuff	Car Washing	2017-11-07	23:30:00	50	Big shaq

4.7 User View All Bids (for a task)

CS2102 Assignment

localhost:8080/tasksourcing/approveBid.php

RENTAL

HOME DASHBOARD SEARCH CREDIT

Your received Bids for the task!

Bidder: tom1999
Status: Pending
Bid Amount: 70
Bid Date: 2017-11-06

Accept bid!

Bidder: BrockMa1975
Status: Pending
Bid Amount: 108
Bid Date: 2017-11-06

Accept bid!

Bidder: SansaAw1992
Status: Pending
Bid Amount: 222
Bid Date: 2017-11-06

Accept bid!

4.8 Admin View All Tasks

CS2102 Assignment

localhost:8080/tasksourcing/viewAllTasks.php

RENTAL

HOME DASHBOARD SEARCH CREDIT

All Tasks in the Database!

S/N	Owner	Title	Type	Start Date	Start Time	End Date	End Time	Price	Description	Total Bids	Edit	Delete
1	admin1	Task 4	Miscellaneous	2018-12-12	12:31:00	2018-12-12	12:31:00	123	Long	1	Edit	Delete
2	admin1	123	Housing Agent	2017-10-12	00:31:00	2017-10-12	12:31:00	123	123	1	Edit	Delete
3	admin1	Task 4	Housing Agent	2018-03-12	14:13:00	2019-03-12	12:31:00	123	123	0	Edit	Delete
4	admin1	Cleaner	Car Washing	2017-10-22	11:11:00	2017-10-24	11:11:00	30	Hopeful	0	Edit	Delete
5	admin1	Alpha	Miscellaneous	2017-10-21	11:11:00	2017-10-22	11:11:00	111	Beta	0	Edit	Delete
6	admin1	Kool	Education	2017-10-21	11:11:00	2017-10-28	00:12:00	123	Fun stuff	0	Edit	Delete
7	admin2	a2 Task	Housing Agent	2017-10-28	11:11:00	2017-10-29	11:11:00	111	Not much to say about this task	2	Edit	Delete
8	admin1	Cleaner 4	Home	2017-10-29	11:11:00	2017-10-29	11:11:00	333	Dread	0	Edit	Delete

Beta Test

After the update hopefully things are better... After the

4.9 Create Task

The screenshot shows a web browser window with the URL `localhost:8080/tasksourcing/createTask.php`. The page title is "RENTAL". The navigation bar includes links for HOME, DASHBOARD, SEARCH, and CREDIT. The main content area is titled "Create a new task to start!". It contains a form with the following fields:

- Task Title**: A text input field.
- Description**: A text area with placeholder text "Description of task..".
- Start Date**: A date input field with placeholder "dd/mm/yyyy".
- End Date**: A date input field with placeholder "dd/mm/yyyy".
- Start Time**: A time input field with placeholder "--:-- --".
- End Time**: A time input field with placeholder "--:-- --".
- Task Price**: A text input field with placeholder "Task Price in SGD".
- Task Type**: A dropdown menu with the placeholder "-- Select Task Type --".

At the bottom of the form is a black button with a white pencil icon and the text "CREATE".

4.10 Create Bid

The screenshot shows a web browser window with the URL `localhost:8080/tasksourcing/createBid.php`. The page title is "RENTAL". The navigation bar includes links for HOME, DASHBOARD, SEARCH, and CREDIT. The main content area is titled "Bid for Task!". It displays the following information:

- Home decoration**
- TaskID**: 4
- Creator**: SansaAw1992
- Type**: Home
- Start Date**: 2017-12-10
- Start Time**: 12:00:00
- End Date**: 2017-12-25
- End Time**: 12:00:00
- Price**: \$69
- Description**: Decorate house for christmas

Below this information, it states "Current highest bid is \$222". At the bottom of the form is a text input field with placeholder "Amount" and a blue button labeled "BID".