**Software Requirements Specification**

A software requirements specification (SRS) is a description of a software system to be developed. It establishes the basis for an agreement between customers and contractors or suppliers on how the software product should function.

Software requirements specification is a rigorous assessment of requirements before the more specific system design stages, and its goal is to reduce later redesign. It also providea a realistic basis for estimating product costs, risks, and schedules. Used appropriately, software requirements specifications can help prevent software project failure. The document lists sufficient and necessary requirements for the project development.

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## User Interfaces

* A stand-alone application developed using python-tkinter to provide a highly interactive GUI
* Back-end: MySQL Workbench, MongoDB to update criminal records.

## Software Requirements

* Operating system-Ubuntu 18.04
* RDBMS-Oracle MySQL Server
* NoSQL-MongoDB version 1.18.0
* Python to train GANs model
* CUDA- An API which provides direct access to the GPU's virtual instruction set and parallel computational elements

## Hardware Requirements

* Processor with 2GHz frequency and above
* A minimum of 4GB RAM
* Monitor resolution 1024 x 768 or higher
* A minimum of 20 GB of available space on hard disk
* GPU-NVIDIA GeForce 940MX

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# Functional Requirements

* 1. **Sketch-Photo Synthesis**

In criminal investigations, photos of suspects are usually hard to acquire and it is known that commercial software or experienced artists are sought to generate sketches of a suspect based on the description of eyewitness. The portraits drawn is transformed into realistic images to increase the chances of precise matching with mug shots. Thus, sketch to photo synthesis becomes important to speed up the process of investigation.

**Input :**Hand-drawn sketches of suspect based on description of eyewitness is fed

**Output:** Realistic photos

* 1. **Face-to-face Matching**

This process involves matching of the suspect’s photo against mugshot database.

Each mugshot is identified by a unique criminal ID.

**Input:** Photos obtained from previous step

**Output:** Criminal ID of matched photo (if exists).

* 1. **Retrieving personal details**

The criminal ID is used to retrieve personal details which includes name,address,eye color,hair,height etc

**Input:** Criminal ID

**Output:** Personal details of criminal

* 1. **Retrieving past criminal records**

The criminal ID is used to obtain no of crimes committed in the past, crime type and respective case details.

**Input:** Criminal ID

**Output:** Records of committed crimes

A final report containing complete details of the suspect and his/her past crime records is produced which helps in the investigation process and tracking down of the suspect with ease.