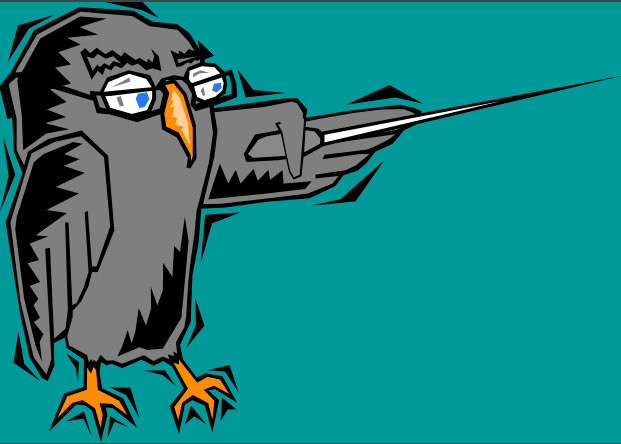




Writing PSM 1 Dissertation Proposals

A presentation by
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Writing a Dissertation Proposal / Thesis

PSM 1 – Final Year Project 1

B.Sc (Graphics and Multimedia Software)

Coordinator

Learning outcomes:



- To introduce strategies for bridging the gap between coursework/beginning research and thesis writing.
- To help you understand the rhetorical situation of the thesis proposal and common elements of such proposals.
- To introduce practical rhetorical and grammatical principles of writing effective proposals.
- To provide you with tips for drafting and revising individual sections of the proposal.

Writing Thesis/Dissertation Proposals

Purpose:

- Justify and plan (or contract for) a PSM project.
- Show how your project contributes to existing application or/and current trends.
- Demonstrate that you understand how to conduct discipline-specific (AR/VR/CGI) in an acceptable time-frame.



Parts of a Proposal – Chapter 1

- Introduction
- Problem Background
- Problem Statement
- Aim -
Rationale/Research
Questions
- Objectives
- Significance/
Implications
- Overview of Chapters

Creating a Title/Topic

- Orient your readers to your PSM topic – **what** technique/algorithm/solutions?
- Indicate the type of area body of study you will conduct – for **what area of study?**

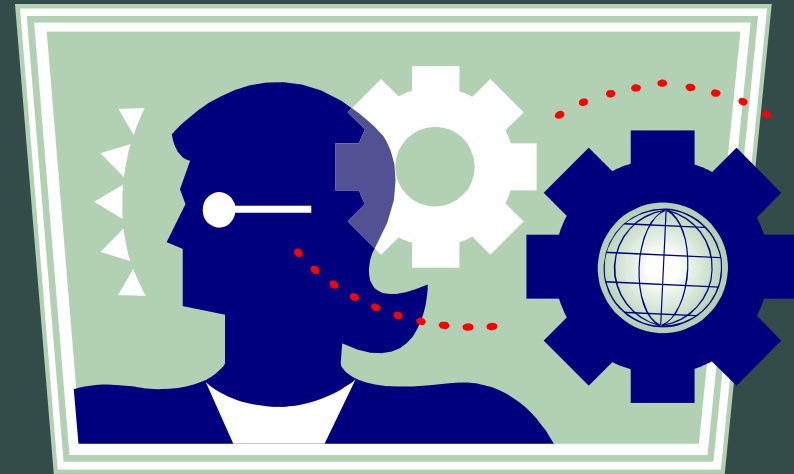
Examples:

- User Interaction Technique **using** Hand Gesture **for** Augmented Reality Environment
- Augmented Reality Modeling Technique **using** Speech Input for **Urban Planning**

How to write - Abstract

- Provide a brief (100-350 word) overview of your PSM project by whole big picture
- Summarize important elements (Introduction, Statement of the Problem, Background of the Study, the Hypotheses, and Methodology and Procedures/Result).

The Big Picture



- What you intend to study (scope and questions).
- How you intend to study your topic (methodology).
- Why this topic needs to be studied (significance).
- When you will complete this work (timeline – Gantt chart).
- (Optional) Where you will conduct this work. – Malacca : if you are working on Ancient Malacca



Introduction/Background

- Establish the general territory (real world or research).
- Describe the broad foundations of your study—provide sufficient background for readers.
- Indicate the general scope of your project.
- Provide an overview of the sections that will appear in your proposal (optional).
- Engage the readers.



Problem Statements

Chapter 1

How to Write a **Problem Statement** - from “Piled Higher and Deeper”

What is the overriding problem?

Where is the problem found?

What needs to be done to solve the problem?

Statement of the Problem



- Answer the question: “What is the gap that needs to be filled?” and/or “What is the problem that needs to be solved?”
- State the problem clearly early in a paragraph.
- Limit the variables you address in stating your problem or question.
- Consider framing the problem as a question.



Aim

Chapter 1

Purpose/Aims/Rationale/Research Questions

- Explain the goals and research objectives of the study.
- Show the original contributions of your study.
- Provide a more detailed account of the points summarized in the introduction.
- Include a rationale for the study.
- Be clear about what your study will **not** address.

Purpose/Aims/Rationale/Research Questions (cont'd)

In addition, this section may:

- Describe the research questions and/or hypotheses of the study.
- Include a subsection defining important terms.
- State limitations of the research.
- Provide a rationale for the particular subjects of the study.



Literature Review

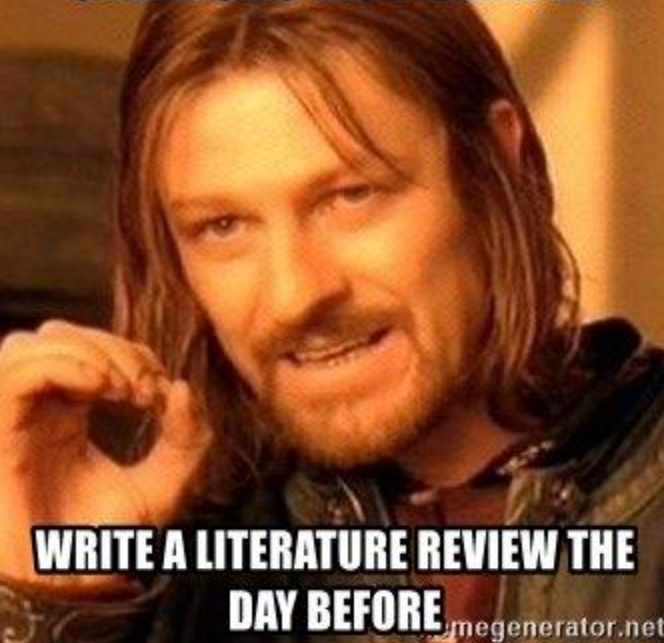
Chapter 2

Review of Literature



Writing the literature review allows you to understand:

ONE DOES NOT SIMPLY

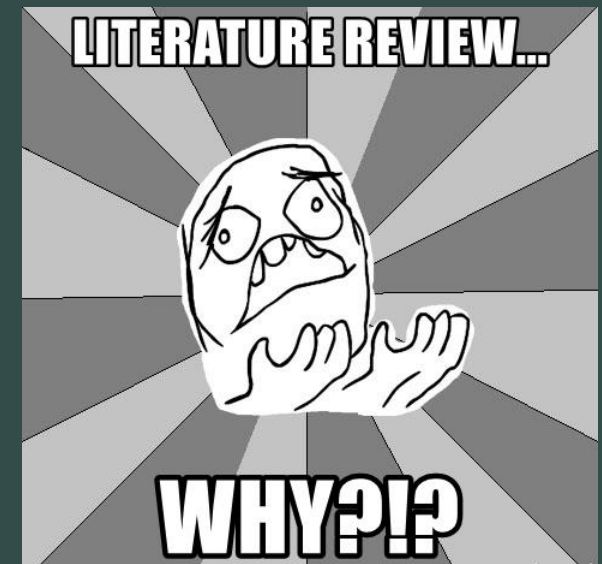


**WRITE A LITERATURE REVIEW THE
DAY BEFORE**

- How other scholars have written about your topic.
- The range of theories used to analyze materials or data
- How other scholars connect their specific research topics to larger issues, questions, or practices within the field.
- The best methodologies and research techniques for your particular topic.

Review of Literature: Rhetorical Functions

- Situates the current study within a wider disciplinary conversation.
- Illustrates the uniqueness, importance of and need for your particular project.
- Justifies methodological choices.
- Demonstrates familiarity with the topic and appropriate approaches to studying it.



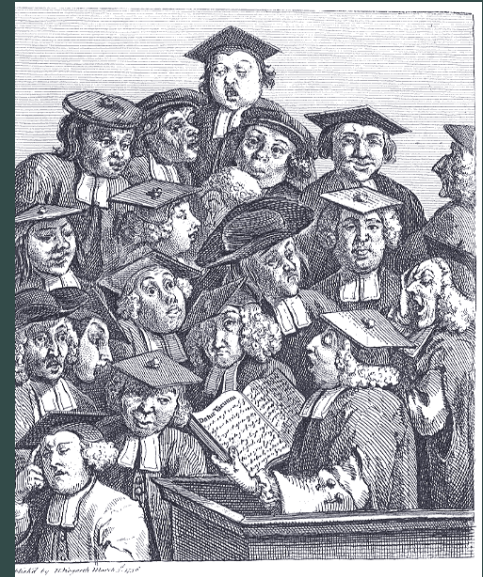
An Effective Literature Review should



- Flesh out the background of your study.
- Critically assess important chronological trends or areas of interest.
- Identify potential gaps in knowledge.
- Establish a need for current and/or future works related to your project.

Writing Literature Reviews: Key Point

- You are entering a scholarly conversation already in progress.
- The literature review shows that you've been listening and that you have something valuable to say.
- After assessing the literature in your field, you should be able to answer the following questions:
 - Why should we study (further) this topic/problem?
 - What contributions will my PSM project will make to improve the existing literature?



Project-based



Comparative Study



HTC Vive



Oculus Rift



PlayStation VR



Samsung Gear



Google Cardboard

	HTC Vive	Oculus Rift	PlayStation VR	Samsung Gear	Google Cardboard
Platform	Windows PC	Windows PC	PlayStation 4	Samsung Smartphone	Smartphone
Experience	Seated VR, Standing VR, Room-scale VR (up to 5 m diagonally), Positional tracking	Positional tracking, Standing VR, Seated VR	Positional tracking, Standing VR, Seated VR	Seated VR	Seated VR
Field of View	110 degrees	110 degrees	100 degrees	96 degrees	Varies
Refresh Rate	90 Hz	90 Hz	90 - 120 Hz	60 Hz	60 Hz
Display Resolution Per Eye	1080 x 1200	1080 x 1200	1080 x 960	1440 x 1280	Varies
Headset Weight	1.2 lbs	1.0 lbs	1.3 lbs	0.7 lbs (without phone)	0.2 lbs (without phone)
Fit	Adjustable headset strap, fits most glasses, 2 eye relief adjustments: lens distance from eye & interpupilliary distance	Fits glasses, interpupilliary distance adjustment	Fits glasses, lens distance from eye can be adjusted, interpupilliary distance adjustment	Fits glasses, focus adjustment	Varies

VR vs AR

Virtual Reality	Augmented Reality
Replaces the real world with artificial.	Enriches real life experience with artificial images by adding sounds, smell and graphics to real world
The user is cut off from the real world and enters in a complete immersive world.	user can interact with the virtual world and real world simultaneously being in the real world
The virtual environment is created inside a headset or a blank room which helps user feel that they are present in that virtual world	Wearable devices are used that displays images on real world objects.
The user moves out of the external world and is fully under the control of computer.	The devices are GPRS enabled that coordinate with the geographical location. The information can be covered with images, videos or tags that can be imposed onto the location.

Comparison of Glove Performance

Specifications	Pinch Glove	5DT Data Glove	Didjiglove	CyberGlove
Number of sensors	7/glove (2 gloves)	5 or 14 /glove (1 glove)	10/glove (2 gloves)	18 or 22/glove (1 glove)
Sensor type	Electrical	Fiber-optic	Capacitive	Strain gauge
Records/sec	NA	100 (5DT 5W), 200 (5DT 5)	70	150 (unfiltered), 112 (filtered)
Sensor resolution	1 bit (2 points)	8 bit (256 points)	10 bit (1024 points)	0.5°
Communication rates	Wired (19.2 kb)	Wireless (9.600 kb), wired (19.2 kb)	Wired (19.2 kb)	Wired (115 kb)
Wrist sensors	None	Pitch (5DT 5 model)	None	Pitch and yaw

From Burdea, Virtual Reality Technology, 2003

Research based - Critical Analysis

Researcher & Year	Project	Display	Modalities Input
Olwal et al. (2003)	SenseShapes: Using Statistical Geometry for Object Selection in a Multimodal Augmented Reality	HMD, Two cameras	Glove, Speech, head
Kaiser et al. (2003)	Mutual disambiguation of 3D multimodal interaction in augmented and virtual reality	Monitor, HMD	Hand tracker, Speech
Heideman et al. (2004)	Multimodal Interaction in an Augmented Reality	Two cameras, HMD	Real hand, Speech
Irawati et al. (2006)	Multimodal interface using speech and paddle gestures	HMD, Monitor	Paddle, Speech
Farbiz et al. (2007)	A Multimodal Augmented Reality DJ Music System	HMD, monitor	Real hand, Speech
Dierker et al. (2009)	Mediated attention with multimodal augmented reality	HMD	Real hand, Speech
Lee et al. (2013)	Multimodal Speech-Gesture Interaction with 3D Objects	Two cameras, monitor	Real hand, Speech
Pitsch et al. (2013)	Augmented reality as a tool for linguistic research	Three cameras, HMD, monitor	Real hand, Speech, Head
Piumsomboon et al. (2014)	G-SIAR: Gesture-Speech Interface for Augmented Reality	Oculus Rift, Monitor	Real hand, Speech

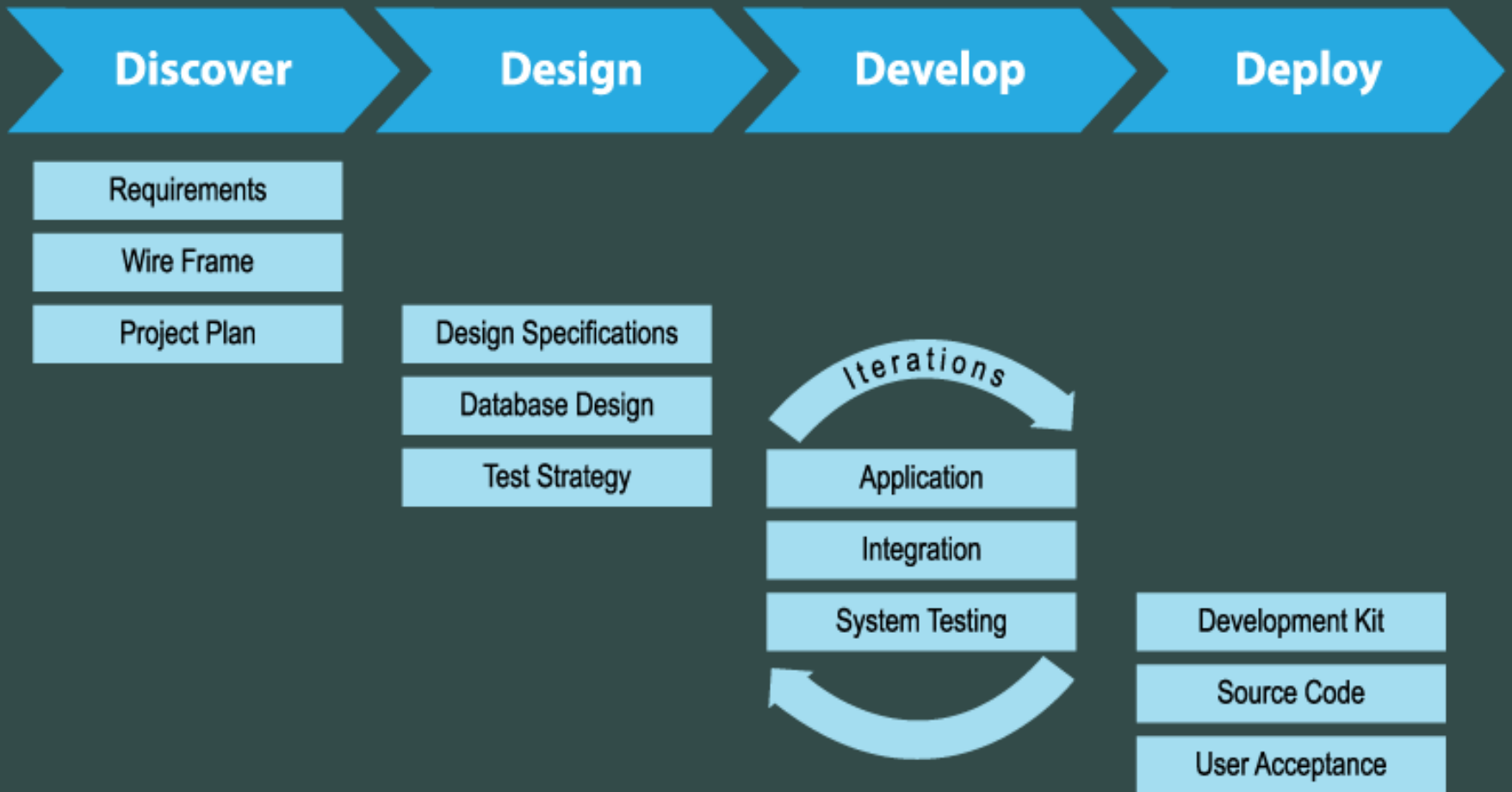


Methodology

Chapter 3

Methodology

- Introduce the overall methodological approach.



SDLC Standard

Project Initiation

- ✓ Team staffing
- ✓ Infrastructure setup
- ✓ ROM (+/-50%)
- ✓ Preliminary project schedule
- ✓ Project specific metrics are defined
- ✓ Project kick-off

Analysis & Requirements

- ✓ Requirements gathering & elaboration
- ✓ Prototyping (requirements)
- ✓ Estimation (+/-25%)
- ✓ Budget & schedule are approved
- ✓ Acceptance criteria

Architecture Design

- ✓ Requirements refinement
- ✓ Architecture
- ✓ Prototyping (architecture)
- ✓ High-level design
- ✓ Unit tests
- ✓ Estimation refinement (+/-10%)
- ✓ Test plan/Test cases

Development & Testing

- ✓ Low-level design
- ✓ Coding
- ✓ Builds
- ✓ Unit testing
- ✓ Bug fixing
- ✓ User docs
- ✓ System testing
- ✓ Integration testing
- ✓ Acceptance test plan
- ✓ Release candidate

Acceptance

- ✓ Customer acceptance testing
- ✓ Bug fixing
- ✓ System release
- ✓ Project package transition
- ✓ Roll-out preparation

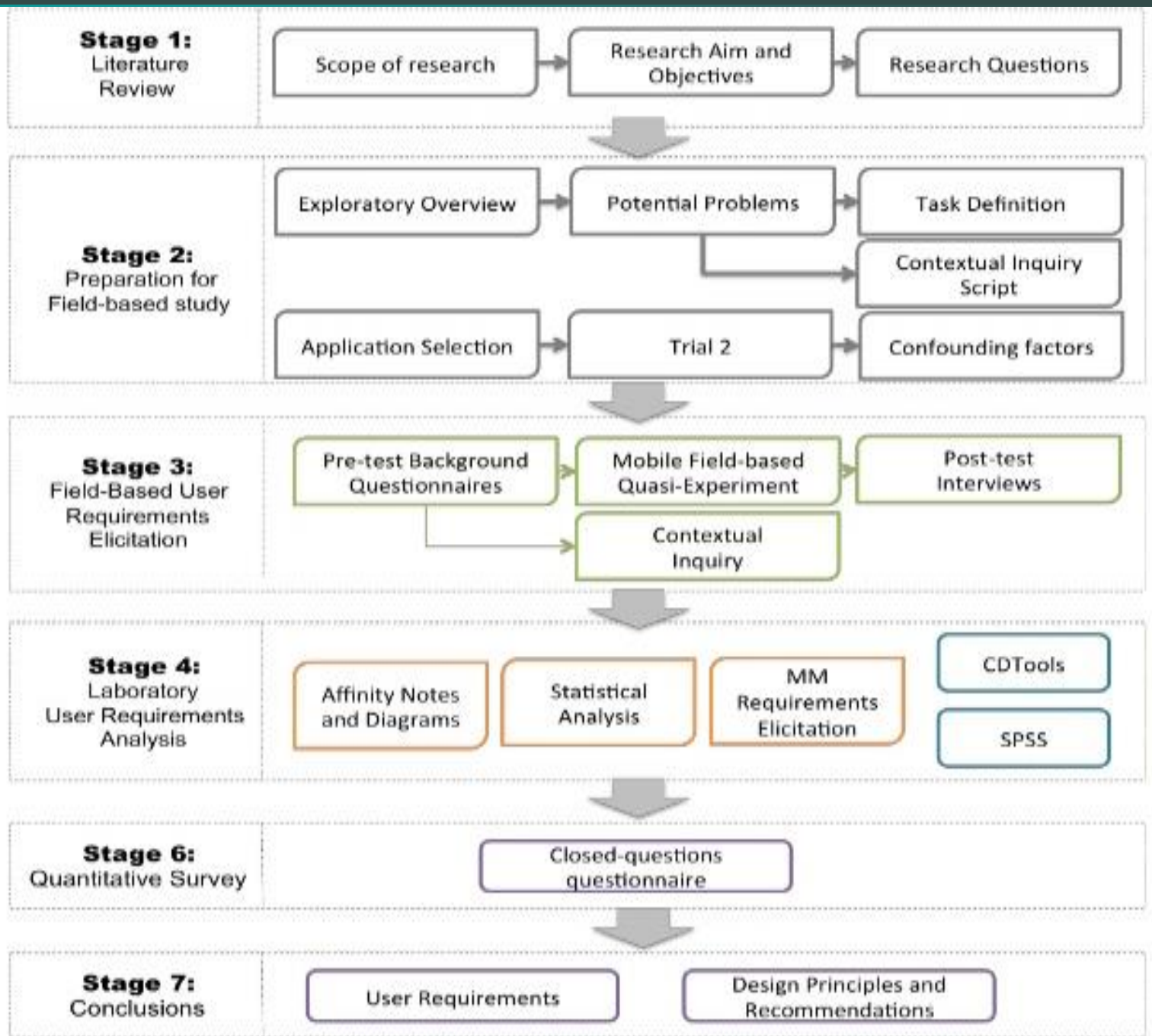
Implementation Warranty

- ✓ System roll-out
- ✓ Bug fixing
- ✓ Knowledge transfer/Training
- ✓ Post project review
- ✓ Customer feedback

Project status, metrics & SLA reporting

Configuration and Change Management

Research-based

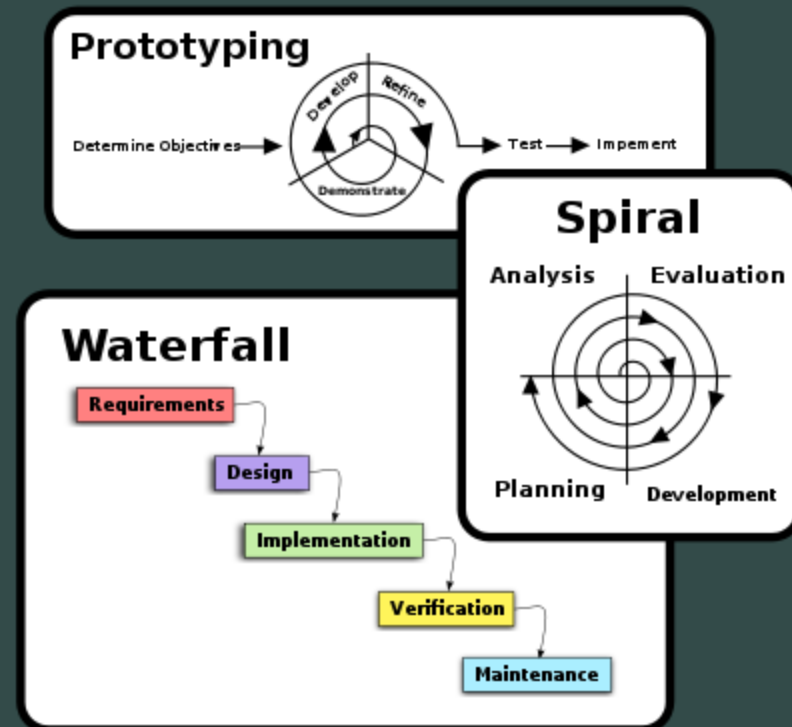


Methodology

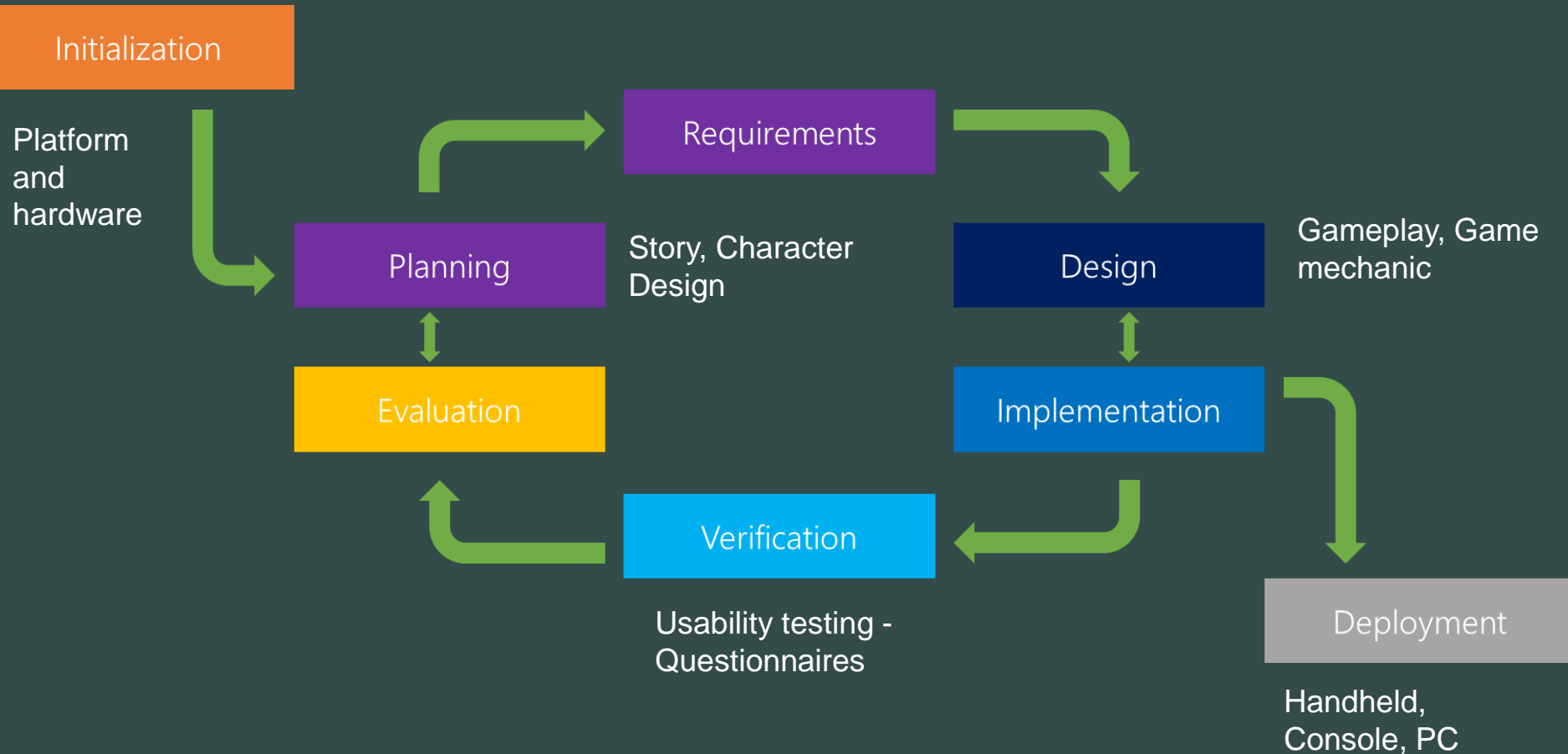
- Indicate how the approach fits the overall project design and development.
- Describe the specific methods of data collection.
- Explain how you intend to analyze and interpret your results (i.e. statistical analysis, theoretical framework).
- It is a necessary to provide references for evaluation procedure – HCI (Usability Testing).

Tips on Drafting Methodology

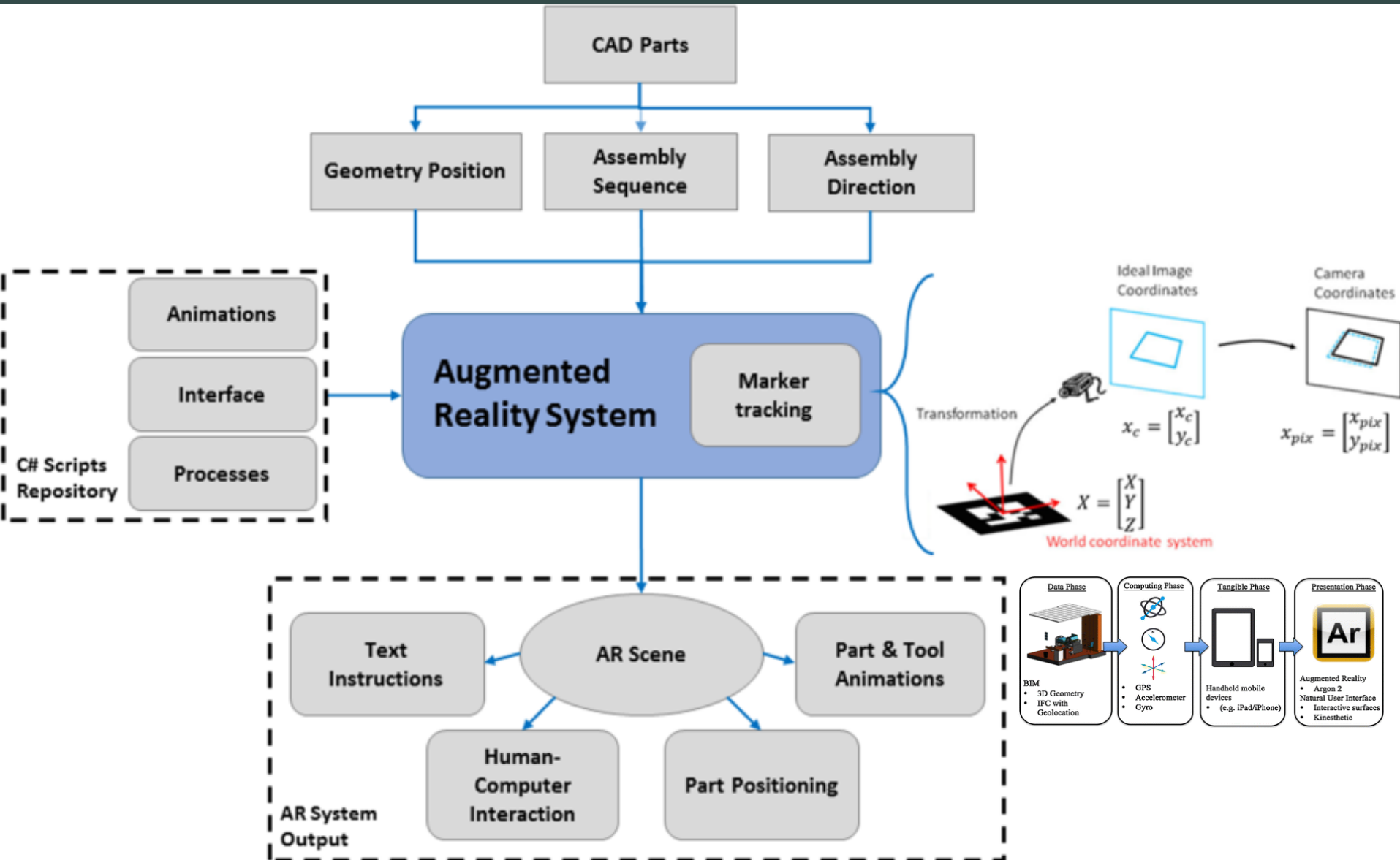
- Break down your methodology into subsections by referring to SDLC standard waterfall.
- Remember that your methods section may also require supporting literature.
- First point for 3.1 : Introduction – **DO NOT** explain about what is Waterfall / any System Analysis and Design method. Describe what your chapter all about.



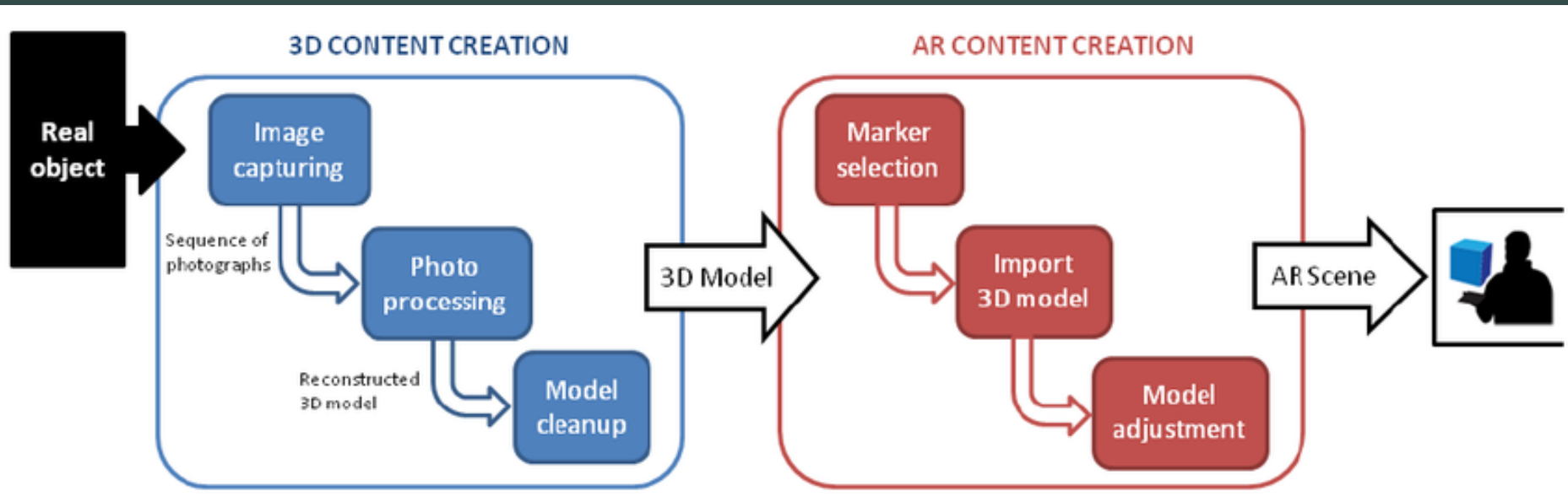
Methodology: Example #1 (Game)



Example #2 (AR)



Methodology: AR



Assessment

- Define your **Tittle**
- Proposed your workflow and convert into Methodology figure for your thesis
- Deadline submission – next class and lectures



Reference and Appendices

Last page of dissertation

References & Appendices

- Include your main references and related works reference of key texts that inform your study and methodology. – Google scholar (pick format APA)
- Your appendices may include Experiment Diagrams, HCI Usability Testing Procedure, etc.



The End

Thank you for listening!
Draft your proposal today!!