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## Using a Mobile Application to Support Tourist's Information and Services Needs: The Case of Cabo Verde Islands

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### Abstract

Mobile applications are proliferating in all business domains. In the tourism sector, that is information intensive, and a global phenomenon, the development of efficient solutions for deliver information and services for “information-starving” tourists is a challenge, and opportunity but mostly a necessity of modern competitive touristic destinations.

This paper briefly discusses the role that mobile devices applications have in the support of information and services of Cabo Verde visiting tourists and presents the design and development of a prototype application Android-based that enable important information and services for all Cabo Verde tourists that need to know more about Cabo Verde islands and their important information and services, manly related with their culture, gastronomy, events and hospitality services.

**Keywords:** Tourism, Cabo Verde, Mobile Application, Touristic Destinations

### Introduction

The impact of Information and Communication Technologies (ICT) in tourism has altered the ways tourism services are accessed and consumed. Ubiquitous and highly innovative ICTs provide different channels for consumers to use tourism services. The development of mobile devices applications has high growing rates in both business and entertainment areas. Tourism sector isn't an exception, several applications are created to help the tourism sector and tourists needs. The massive presence of mobile devices, with several in-build technologies (e.g. Bluetooth, WIFI, NFC), in people' daily routines, make the mobile device an outstanding channel for information and services consuming.

The rapid development of ICT in general and the Internet in particular has dramatically changed the tourism industry. Factors such as a quality site, Digital Marketing, Social Networks, Multimedia, Mobile Technologies and Smart Environments are some examples (Morais et al., 2016). ICT have provided a new mode for cooperative relationships among the members of the various distribution channels (Buhalis & Law, 2008). The formation of these cooperative relationships has been facilitated and encouraged by three major factors: interdependence among a wide range of goods and services (all part of the final tourist product), the small size of many individual operators, and spatial separation between the vacation and the home, (Fyall & Garrod, 2004; Wang & Fesenmaier, 2007). Beyond these particular factors of the tourism sector, the intensity of information exchange among companies operating in the same distribution channel has led to greater efficiency, as increased information exchange highlights shared interests and common goals, which in turn facilitate collaboration (Spralls, Hunt, & Wilcox, 2011).

Use ICT is no longer a differentiator stage but a requirement to be competitive in a word where tourists are starving for information about everything that surround them. A touristic experience in a visiting destination is information intensive and mix experience between the physical and virtual worlds.

Tourism is one of the sectors with the greatest dynamics in the economic and social growth of the countries and in this case Cabo Verde, being a touristic destination is no exception. Cabo Verde presents a great potential for tourism, for its natural beauty, cultural and biological diversity. To contribute for the promotion and information and services support of Cabo Verde as an attractive touristic destination, is presented a mobile application prototype designed to support information and services needs of visiting tourists.

### **The Role of Mobile Applications in Touristic Destinations**

Technology changes the tourism value chain in the various phases of visit, namely (Pou & Pera, 2005): in planning the visit (possibility of collecting information, booking online and preparing the visit a la carte, at home), selecting and buying transportation (less bureaucracy, possibility to consult and choose different itineraries in advance, use of tools to guide the visitor to the destination through, for example, GPS technology or third-generation mobile phones), on arrival at the destination (use of interactive guide systems, security systems in passport control, reducing check-in times, virtual visits to places of interest); during the stay (promotional text messages, interactive guides, proper signaling, VoIP communications that reduce costs).

This reality has brought, to the main players in the tourism sector, uncountable opportunities. The enormous amount of data generated by all actors can be used to understand, with good precision, tourist behaviour, deriving and anticipating their needs if we can extract, from the data, information and knowledge. For supporting the “during the visit” stage have been developed several applications that take advantage of the fact that tourists have mobile devices connected to the Internet. Mobile-devices, mainly smartphones, combined with their ability to access the Internet in an unexpansive way, are embedded in daily routines and represent the most common and widely used technology today’. Educational level is not a serious barrier to their use and, their wide availability makes them an ideal tool for interacting with information technology and on-demand services. This is reinforced by the evolution trends in mobile-devices, which show an enormous potential that can be tapped to support enterprise information and services platforms, specially m-commerce, as discussed in (Mahatanankoon, 2005; Ngai & Gunasekaran, 2007; Cunha et. al., 2010) making them the key technology to access data services and support ubiquitous frameworks.

The market penetration of mobile technology (Shaikh and Karjaluoto, 2016) also influenced the adoption of tourism products and services. The ubiquity, flexibility, personalization and dissemination features of mobile technology make it a veritable tool for both marketers and consumers in tourism and hospitality services (Kim et al., 2008). For consumers, the functionality of mobile technology, such as the ease of access to travel information and trip guides, is an essential feature of its increased adoption, whereas for marketers, it is the opportunity to send marketing messages to a targeted audience. The called smart tourism provides more relevant information, greater mobility and better decision support over e-tourism (Gretzel et al., 2015).

### **Model and Architecture**

In this chapter, a brief description of the model and proposed architecture is made and developed to support the presented problem from a generic perspective.

The goal is to create a mobile application (CvTour) to promote Cabo Verde. The mobile application is intended for devices with Android operating system, which will have two different perspectives, one for the users and one for the administrator.

It is intended to implement a database for the CvTour app, which contains a showcase of information segmented into categories that are: culture, gastronomy and the islands are as subcategories: sights, excursions, accommodation, catering and events of each island.

After analyzing the requirements, we propose the use case diagrams for the user and for the administrator presented in Fig 1 and Fig 2.

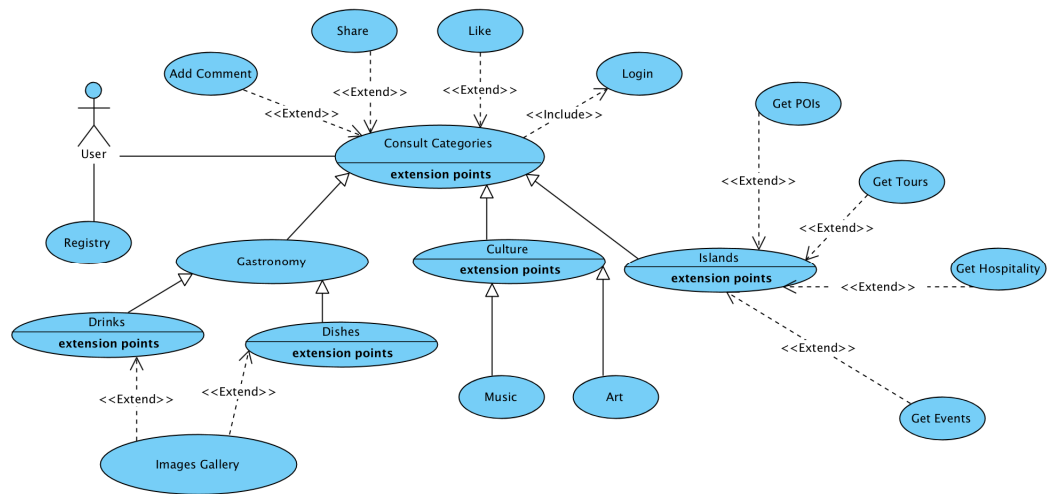


Fig. 1 - Use Case Diagram – User

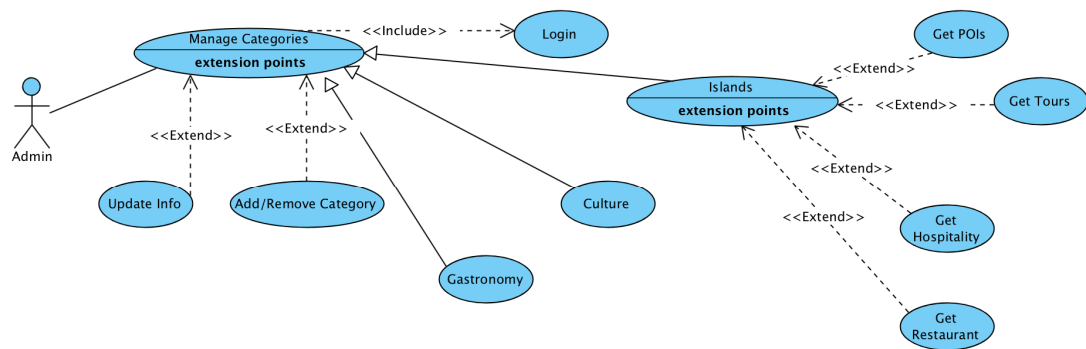
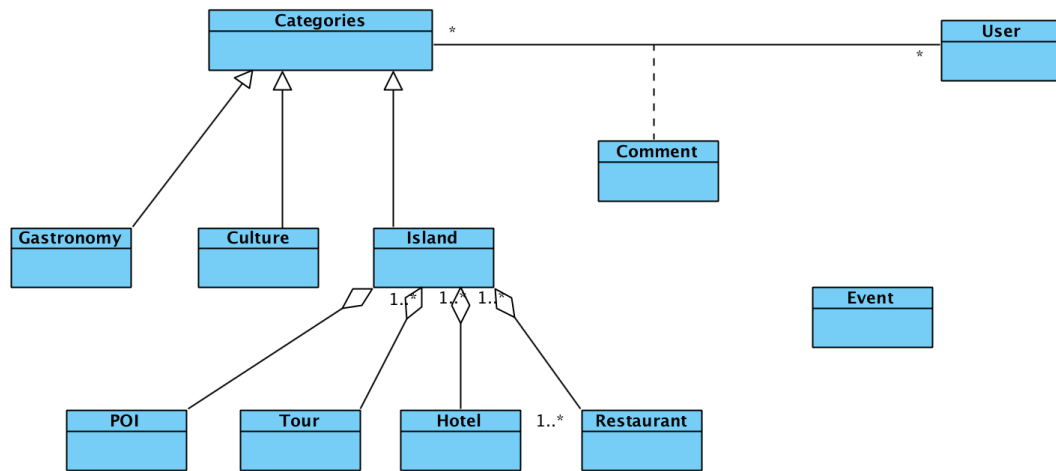


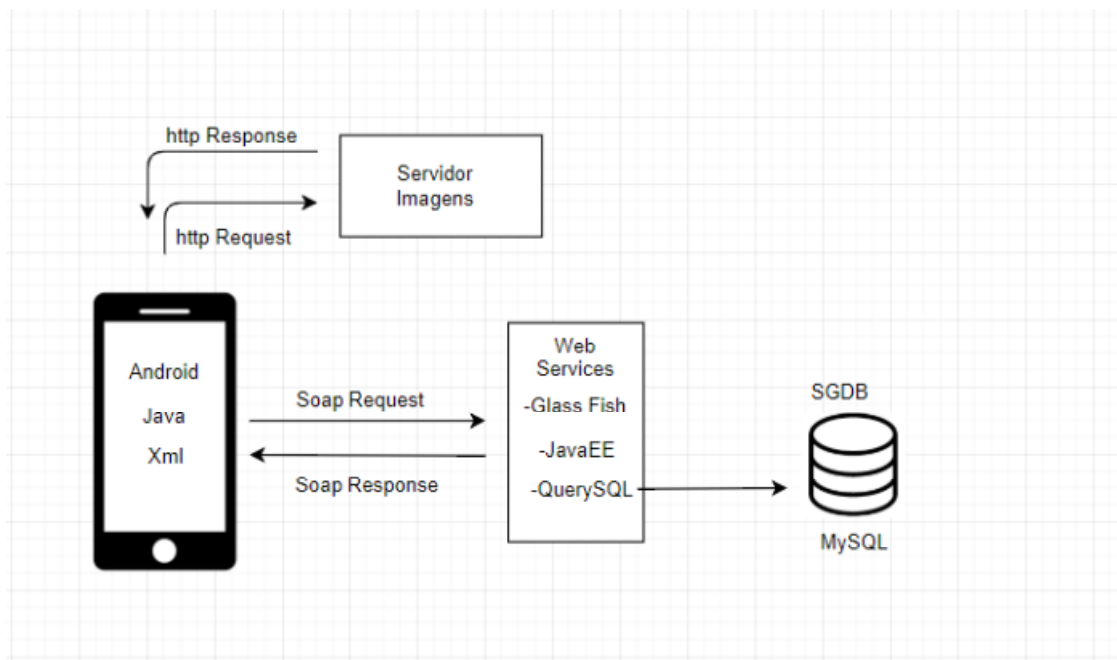
Fig. 2: Use Case Diagram – Administrator

The Fig 3 represents the class diagram according to the description of the problem, presenting the classes that compose the system and how they relate to each other.



**Fig. 3 : Class Diagram**

After the analysis of requirements and the data model, in Fig 4 the proposed architecture is presented, where its main components, technologies and main flows of information are represented.



**Fig. 4: Proposed Architecture**

In the proposed architecture a multi-platform integration perspective is presented where a tourist through a smartphone mobile application, can query a Web Services platform and also interact with external services providers. Developing effective and lasting solutions to promote Heritage itself and also business geared by heritage can only be a reality through a cooperation perspective where several independent platforms feed mobile applications needs.

For validating the proposed architecture, we have developed a prototype focusing on Cabo Verde promotion. The information was segmented into categories that are like culture, gastronomy and the islands are the subcategories: sights, excursions, lodging, catering and events of each island.

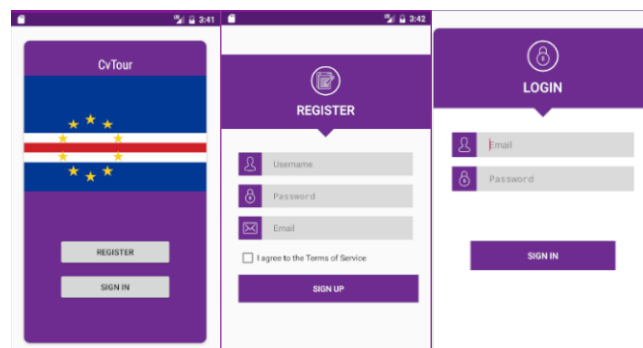
### Developed Prototype

The use of mobile applications in everyday life is an increasingly present reality, and this reality, in our opinion, has come to stay.

Applications are able to meet the constant need for access to information in a simple and effective way, bringing many benefits both professionally and personally. Its use goes not only through the search for communication, but also through help in the most diverse tasks of everyday life. More than 95% of people use digital tools before, during and after their journeys in search of the best travel experience (Cunha et. al., 2018).

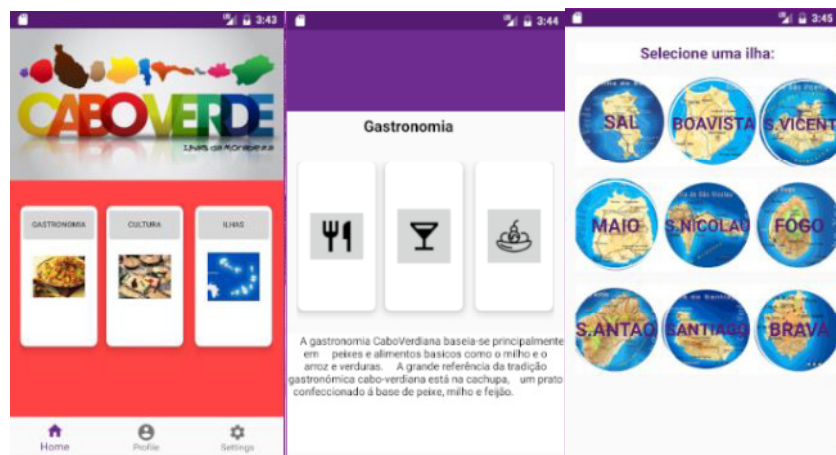
The application prototype is divided into two parts, frontend where users can interact with the application and the backend part, intended for the admin, the administrative panel, responsible for managing the application.

Above, some screenshots of the Android App that have been developed as a Proof-of-Concept of the proposed architecture named “CvTour” are presented. In Fig. 5 we can see the registration and login screenshots for users.



**Fig. 5 : Users' s registration and login screenshots**

Fig. 6 show a screenshot of the App where we can see a Cabo Verde tour. The goal is to learn more about the gastronomy, culture and the Cabo Verde Islands.



**Fig. 6 : Cv Tour screenshots examples**

Fig. 7 shows screenshots available for the administrator. In this menu, after the registration, the administrator can insert / manage accommodations, events, excursions, gastronomy and tourist points.

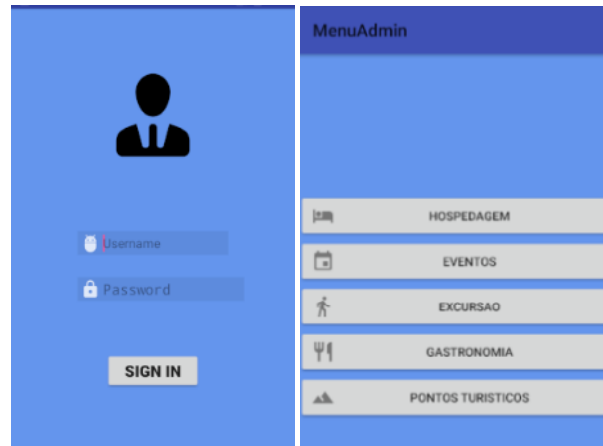


Fig. 7: Admin's screenshots examples

## Conclusion and Final Remarks

This paper presents a design and developed prototype for promote the Cabo Verde Islands. The developed solutions as been designed to allow tourists to consume information and services related to the Cabo Verde heritage, culture, gastronomy and main hospitality support services. This solution is an easy straightforward way to deliver utility information and services that tourists need in the “during the visit” stage of tourism cycle. This solutions, providing important mechanisms to bridge the gap between information and services providers and tourists, still have many times to face that need of backend cooperative networks to provide a wide and consistent among of information and services, the lack of such cooperation can destroy the potential of this approaches to support tourists need when them experience new touristic destinations.

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## References

- Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet-the state of e-tourism research. *Tourism Management*, 29, 609-623.
- Cunha, Carlos R.; Morais, Elisabete Paulo; Alves, António (2018). Promoting heritage through a pervasive and mobile computing approach: the case of the Portuguese city of Mirandela. In 31st International Business Information Management Association Conference. Milan, Italy. p. 202-212. ISBN 978-0-9998551-0-2
- Cunha, C. R.; Peres, E.; Morais, R.; Bessa, M; Reis, M. C. (2010). Contextualized Ubiquity: A new opportunity for rendering business information and services (extended version). In *Journal of*

Theoretical and Applied Electronic Commerce Research, Universidad de Talca – Chile, vol. 5, issue 3, pp. 55-64. ISSN 0718–1876.

Fyall, A., & Garrod, B. (2004). Tourism marketing: A collaborative approach. Cleveland: Channel View Publications.

Gretzel, U., Sigala, M., Xiang, Z., Koo, C., 2015. Smart tourism: foundations and developments. Electron. Mark. 25, 179–188.

Kim, D., Park, J., Morrison, M. (2008). A model of traveller acceptance of mobile technology. Int. J. Tourism Res. 10, 393–407.

Mahatanankoon P., Wen H. J., and Lim B. (2005). Consumer-based m-commerce: exploring consumer perception of mobile applications, Computer Standards & Interfaces, vol. 27, no. 4, pp. 347-357.

Morais, E. P.; Cunha, C. R.; Sousa, J. P.; Santos, A. (2016) - Information and communication technologies in tourism: challenges and trends. In 27th International Business Information Management Association Conference - Innovation Management and Education Excellence Vision 2020: from Regional Development Sustainability to Global Economic Growth. Milan. p. 1381-1388.

Ngai E. W. T. and Gunasekaran A. (2007). A review for mobile commerce research and applications, Decision Support Systems, vol. 43, no. 1, pp. 3-15.

Shaikh, A.A., Karjaluoto, H. (2016). Mobile banking services continuous usage – case study of Finland. In: 2016 49th Hawaii International Conference on System Sciences (HICSS). IEEE, pp. 1497–1506.

Spralls, S. A., Hunt, S. D., & Wilcox, J. B. (2011). Extranet use and building relationship capital in inter-firm distribution networks: the role of extranet capability. Journal of Retailing, 87(1), 59e74.

Wang, Y., & Fesenmaier, D. R. (2007). Collaborative destination marketing: a case study of Elkhart country, Indiana. Tourism Management, 28, 863e875.